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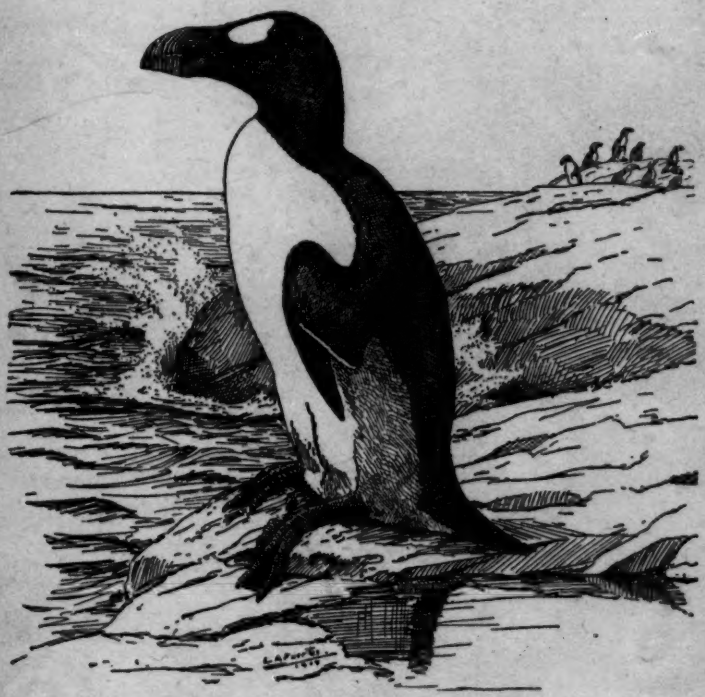

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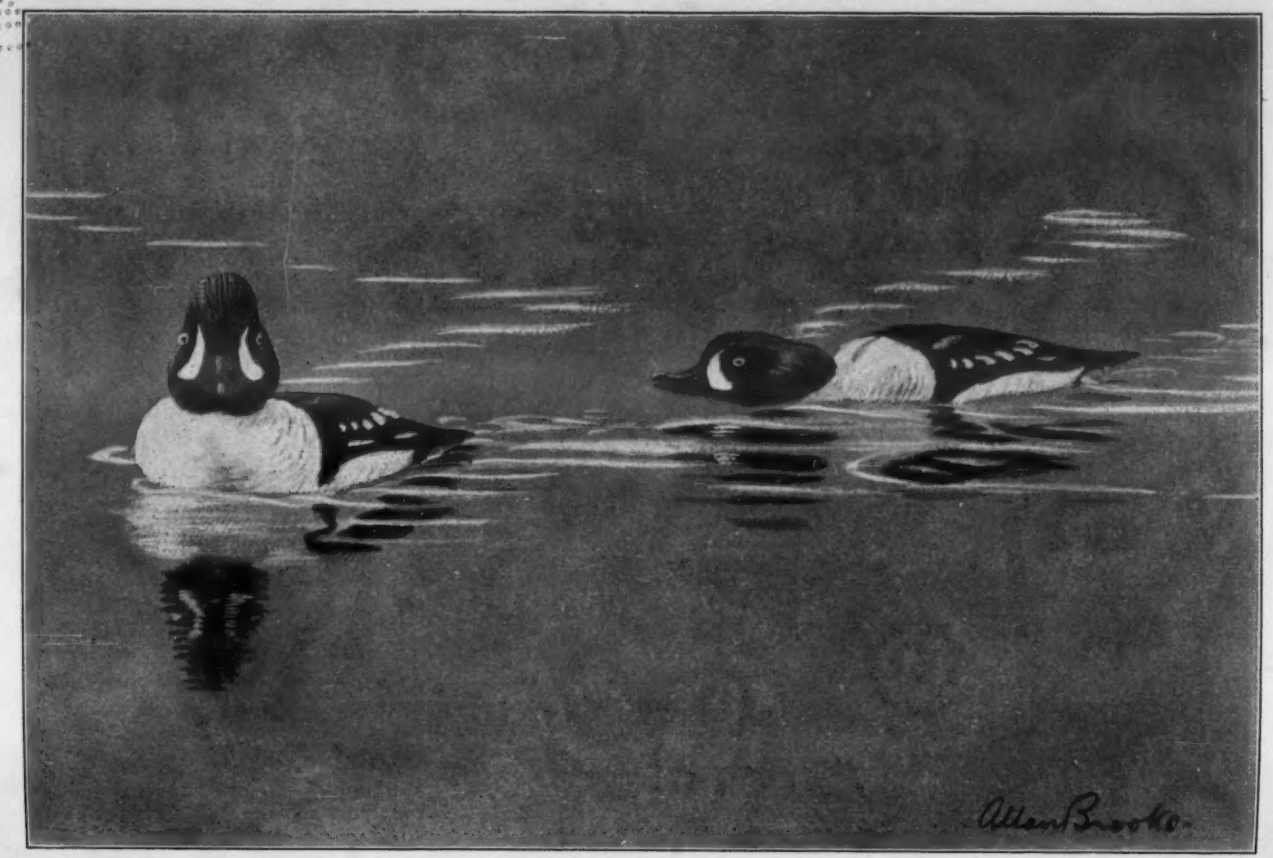

MALES OF BARROW'S GOLDEN-EYE "CHASING"

THE AUK:

A QUARTERLY JOURNAL OF

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VOL. XXXVII. JULY, 1920. No. 3

NOTES ON SOME AMERICAN DUCKS.

BY ALLAN BROOKS

Plates XV–XVI

This contribution has been stimulated by the many valuable papers by American ornithologists on these hitherto rather neglected birds. Mr. Hollister's paper on the Ringneck in 'The Auk' for October 1919 is especially welcome, expressing as it does the first appreciation of the real affinities of this species.

The changes that he proposes for the next A. O. U. 'Check-List' regarding the position of this duck are quite in order, but a more important one is to put the Ruddy Sheldrake where it belongs, its present position in the 'Check-List' being quite impossible.

There is a great deal of work to be done yet even on the commonest of North American ducks especially with the plumages of the females. The variation in these is considerable. In the surface-feeding ducks it consists largely of a decrease in the spotting of the lower surface in many species. I always put this down to age but since I have found that a similar condition found in the larger Falcons, is really an individual variation without any change through successive moults, I am inclined to wait until observations are recorded of female ducks in captivity.

The variation in the females of the diving ducks is not as a rule so pronounced, but it occurs in many species.

Marila americana. REDHEAD.

There is a very frequent tendency to albinism in the female Red-head, not in the male. Adult females are almost always plentifully sprinkled with white feathers on the back of the head and neck; this is accompanied by a varying amount of white in the down. I have carefully plucked the outer feathers from a number of females, the down on the lower surface may or may not be white. The amount of white in the down seems to parallel the amount of white in the feathers of the head, very rarely is the down continuously white but is usually marbled with patches of dusky colored down. The fattest birds very often have the largest areas of white in the down on the lower surface, it may be that the down may not be properly pigmented because of the heavy layer of fat.

On the lake in front of my house at the present moment among the hundreds of Redheads is a female with an almost entirely white head, the body being quite normal.

The variation in the numerical strength of the sexes according to season is probably as pronounced in this species as in any duck. At present (November), the proportion of females to males is about 2 to 3, in midwinter, (January), one hardly sees a female in the large flocks of males, and not until the end of February are the proportions anything like equal. A similar sequence occurs in nearly every species of duck at this latitude, with the possible exception of the Mallard, in which the sexes are usually proportionate throughout the year.

Marila marila. SCAUP.

The A. O. U. 'Check-List' gives this species as breeding in southern British Columbia; I can find no reliable record of this, and consider it in the highest degree improbable, as I have never seen the species in summer even as far north as I have been in central British Columbia, (lat. 54°), except for a few crippled birds.

Marlia affinis. LESSER SCAUP.

This is a common breeder in central British Columbia (the region between Quesnelle Lake and Lac la Hâche), but a scarce one in the southern portion of the province.

Unlike the larger species the females are very variable, in many fully adult and breeding birds there is no white at the base of the bill, the whole head being light brown; in others the head is very dark brown with a conspicuous white patch on the face, as in the Greater Scaup. These dark birds very often have the back freckled with white, a character I have not noticed in the light brown headed birds, in which the whole body plumage, except the breast and belly, is uniform light brown.

Marila valisineria. CANVAS-BACK.

Breeding range exactly as in the Lesser Scaup. Southern breeding records are Lumby—one pair in 1902, and Grand Forks—three pairs in 1919.

Marila collaris. RING-NECKED DUCK.

I can completely endorse all that Mr. Hollister says about this duck. One other point of similarity between it and the Redhead is the color of the downy young, exactly the same in both birds and quite different from the dusky ducklings of the Scaups. When in England I frequently watched the Tufted Ducks very closely, to see points of affinity to our Ringneck. The full plumaged males certainly look very much alike, especially when one sees them diving in shallow water, the whole body being almost enveloped in the light colored flank feathers. They, like the male Ringnecks, are very conspicuous as they dart about along the bottom rising like corks after a short immersion.

But the females are not so much alike, and the young are utterly different, the downy young of the Tufted Duck being the most dusky colored ducklings I know of. And the females and young are a far better indication of affinities than the males. The female of the old world Pochard (*Marila ferina*) is extraordinarily like a female Canvas-back, a female Redhead in the London Zoo ponds alongside of the Pochards looked utterly unlike, both in form and color, but strangely like a couple of female Rosy-billed ducks (*Metopiana peposaca*) which often came alongside of her.

And yet a certain well-known ornithologist in England proposes to make our Redhead a subspecies of the Old World Pochard!

Clangula islandica. BARROW'S GOLDEN-EYE.

This is an attempt to find a reliable method for separating two perfectly distinct species. For Barrow's Golden-eye is a perfectly distinct species and has always been recognized as such, yet it would be more than difficult for an ordinary man to identify a series of specimens by the aid of any of the works of reference I have come across.

Even the best authorities themselves seem uncertain as to the reliability of their points for distinguishing the females and young of the two species.

This has probably led to the slighting references and inadequate descriptions by minor authors.

Barrow's Golden-eye is not a "perpetuated accident of variation" except to those who know nothing of the bird. The adult males are not only easily distinguishable in the hand by at least eight points of difference (including structural) but are readily identified in the field as far as one can separate one species of duck from another.

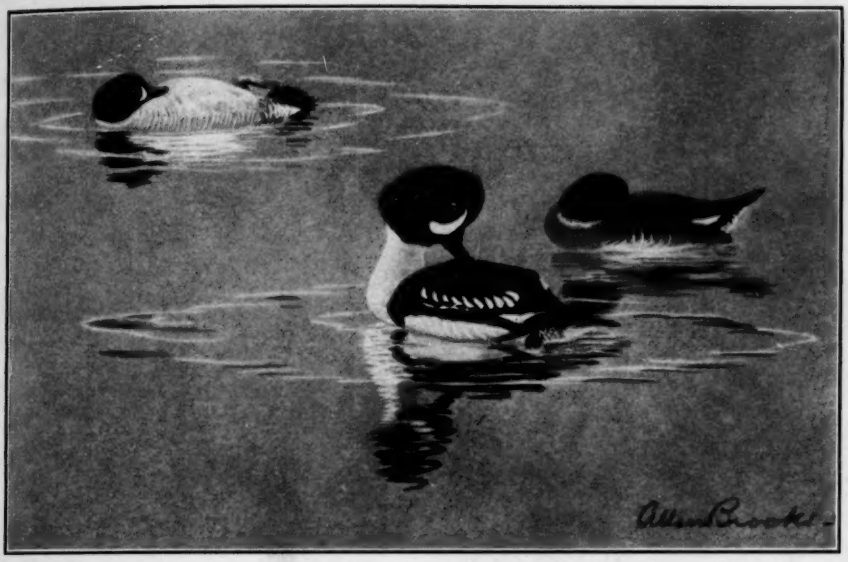
Millais in his 'British Diving Ducks' is the only author who recognizes this, probably because he is the only one familiar with the species in life.

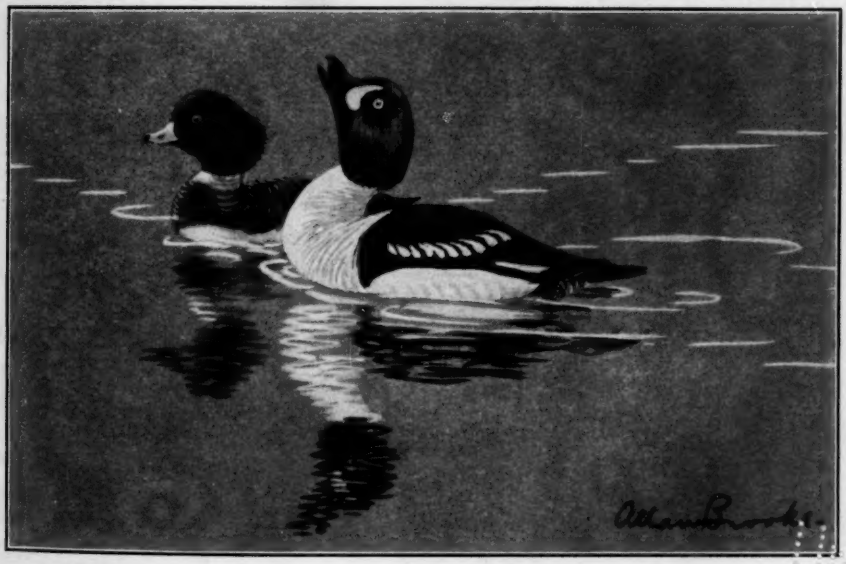
The crescentic cheek mark, the purplish head, the black wing bar, and the spotted scapulars, are the marks usually given for field identification of the adult male; but the most striking difference is the very black appearance.

Adult males of the Common and American Golden-eyes are very *white* birds, the body looks almost altogether white, just as a male Bufflehead's does, especially when sitting. The adult male Barrow's on the other hand looks to have a body more black than white. The most conspicuous feature of a duck at rest is the flank. Whatever color the flank feathers are, they will dominate the mass of the bird, as they overlap the whole wing and sometimes even a portion of the back.

Thus a fully plumaged Ringneck drake looks to be almost as white as a Scaup, a Black Brant looks more white than black, and so on.

The flank feathers in Barrow's Golden-eye (adult male) are heavily margined with black, fully two-thirds of an inch wide,





1. BARROW'S GOLDEN-EYE. MALES PRUNING. FEMALE ASLEEP.
BARROW'S GOLDEN-EYE COURTING.
MALE IN SWALLOWING ACTION. FEMALE BOBBING UP AND DOWN.

and the black comes almost, or quite, to the water line in front of the wing.

But while a child could distinguish the adult males of the two species, it is a very different matter when it comes to the females and young.

The case of the Cinnamon and Blue-winged Teal is similar, and there are many others where two utterly dissimilar males have females that are almost identical. In the Golden-eyes this has been complicated by the oft-quoted recognition marks that have no value, as they are common to both species.

Perhaps it may be as well to go over the accepted and proffered distinctions for separating *islandica* from *americana*.

1. The wing bar. This is the most often quoted distinction. In the adult male of Barrow's there is certainly a constant and conspicuous black bar separating the white patch on the wing, this is caused by the *bases* of the greater coverts being black. But the bar formed by the black *tipping* of these feathers in the females and young is, as pointed out by Mr. Brewster (Auk, Vol. XXVI, p. 159), an utterly valueless distinction, as both species may or may not have it in different individuals.

Five adult females of Barrow's in my collection have these feathers as follows:

No. 1. Solid black, no bar.

No. 2. Base black, terminal half white with small black tips, forming a slight bar.

No. 3. Tips black, well-defined bar.

No. 4. Trace of spots on tips of two feathers, no bar.

No. 5. Slight bar.

All of these are absolutely identified, being taken in the spring when paired.

The most pronounced bar in a female in my collection belongs to an otherwise typical *americana*, which has all the coverts tipped black, while another has a trace of a bar.

2. Deeper coloring of head and neck in female Barrow's. This is a fairly reliable distinction but it is a *comparative* one. Ridgway in his manual says of *islandica*, "brown of head descending to middle of neck all round." I can see no difference in amount of brown in fresh specimens of the two species; the above distinction probably depends on the make-up of the skin.

3. Wider gray pectoral band. Probably a sound distinction but one which is dependent, in the skin, on a uniform method of make-up.

4. Shape and proportions of bill. The more tapering bill of *islandica* is a thoroughly good distinction, but as given by all authorities it is a comparative one, just as is "bill more goose-like."

How can a man who has only one Golden-eye tell whether the bill is tapering when no measurements are given, or that it is goose-like if he has no example of the other species to compare with it? Ridgway's 'Manual' however has a definite formula as the best distinction between the two species.

"A^1. Height of upper mandible at base, measured from point of frontal angle to nearest point on cutting edge, less than distance from anterior edge of loral feathering to anterior end of nostril, and usually little if any greater than distance from latter point to tip of upper mandible

G. clangula.

151. *G. clangula americana.*"

"A^2. Height of upper mandible at base, measured from extremity of frontal angle to nearest point on cutting edge, equal to distance from anterior point of loral feathering to anterior end of nostril, and much greater than from latter point to tip of upper mandible

152. *G. islandica.*"

I have carefully tested this with the following results:

If the first measurement is taken by placing one point of the dividers on the frontal angle, and the other on the cutting edge, *i. e.*, the chord of the distance around the bill, the results are wrong in one-fourth of my specimens of *islandica*, including one adult male, and wrong in two-thirds of my specimens of *americana* including two adult males.

If this measurement is taken by holding one point of the dividers level with the frontal angle in line immediately above the nearest point of the cutting edge, *i. e.*, the actual height of the former above the latter, the results are hopelessly out in nearly all my *islandica*, but correct for all but one of my *americana*.

If the first portion of the proposition is taken, eliminating the distance from nostril to end of bill, measurements taken by first method, the results are correct in all my *americana*, but wrong in four out of eleven *islandica*. So this distinction, which I had great hopes of, proved a "no thoroughfare."

5. Nail of bill. Ridgway gives width in *americana* female "not more than .20." I have a female with a nail width of .22. In *islandica* female "not less than .23," this holds good even when a very young *islandica* is included, it has a nail .26 wide. Brewster says he is unable to verify this distinction with his series, so it must be reckoned uncertain.

Nail larger and more hooked at tip ('Game birds of California'), also Munro in 'The Condor,' No. 1, Vol. XV. "Nail is wider at the front, projects further over tip of bill, and is slightly raised above the bill forming a noticeable lump."

All of these distinctions hold good but then again, as given, they are mostly comparative.

6. Color of bill. The yellow color of the bill in *islandica* is an oft-quoted distinction and one to which Mr. Brewster attached great faith.

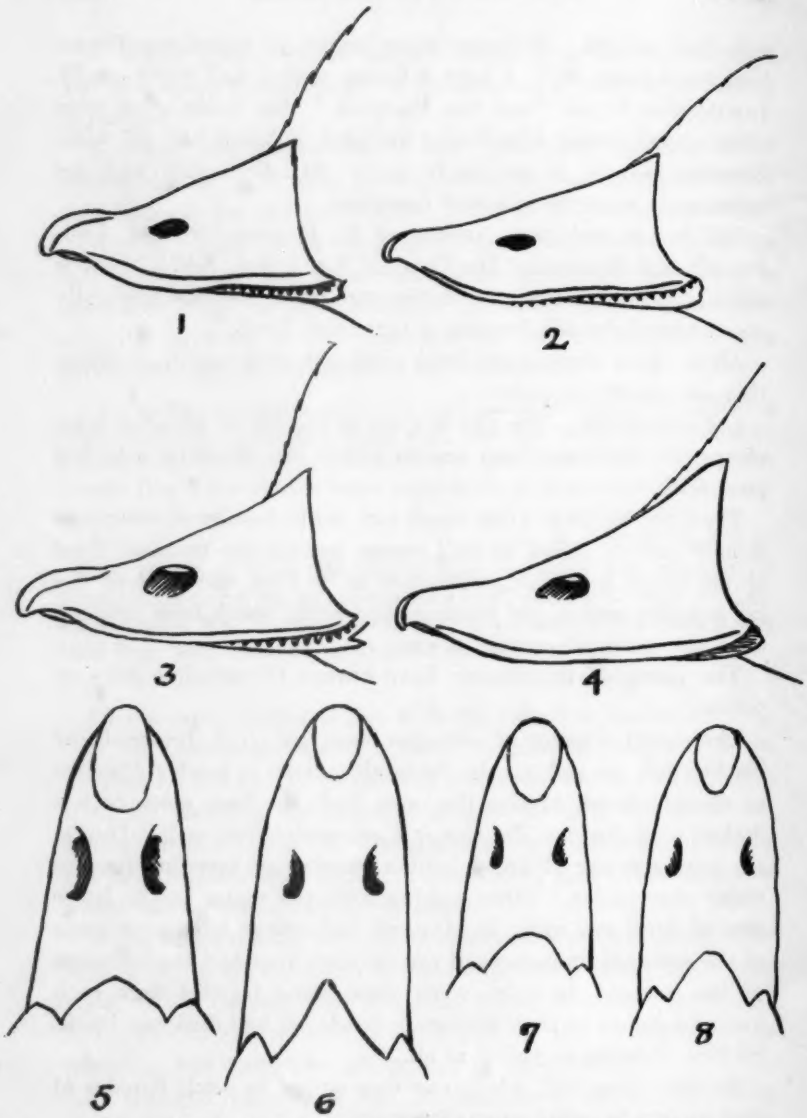
The following facts I can vouch for: Adult females of *americana* usually have a yellow or dull orange bar on the terminal third of the upper mandible, sometimes more than one-third of the bill is yellow and in one instance (and here I speak from memory only) the entire bill orange yellow.

The young of this species have always (?) an olive bill—no yellow.

The young females of *islandica* have an olive, brownish, or blackish bill, no yellow. In the adult females it is wholly orange or cheese-colored, or else the same with the base more or less flecked with dusky. *But this is a seasonal feature only.* During the past summer (1919) I kept a number of breeding females under observation. When pairing with the males in the latter part of April and early in May, *all* had orange bills, even some of the unmated immatures of the previous year had the bill more or less orange. In July, when these same females were each leading a brood on their respective ponds, all had dusky or blackish bills, showing no yellow at all.

So the yellow bill, which can only apply to adult females at best, cannot be relied on at all seasons.

7. Skull. The difference in the shape of the frontal bones has been noticed by several authorities, it is pronounced enough in adult males, but a rather subtle distinction when applied to young birds (see figures p. 362).



1 and 7. Barrow's Golden-eye ♀ ad. March 21, 1914.
2 and 8. American Golden-eye ♀ ad. April 7, 1914.
3 and 5. Barrow's Golden-eye ♂ ad. April 15, 1911.
4 and 6. American Golden-eye ♂ ad. March 17, 1891.

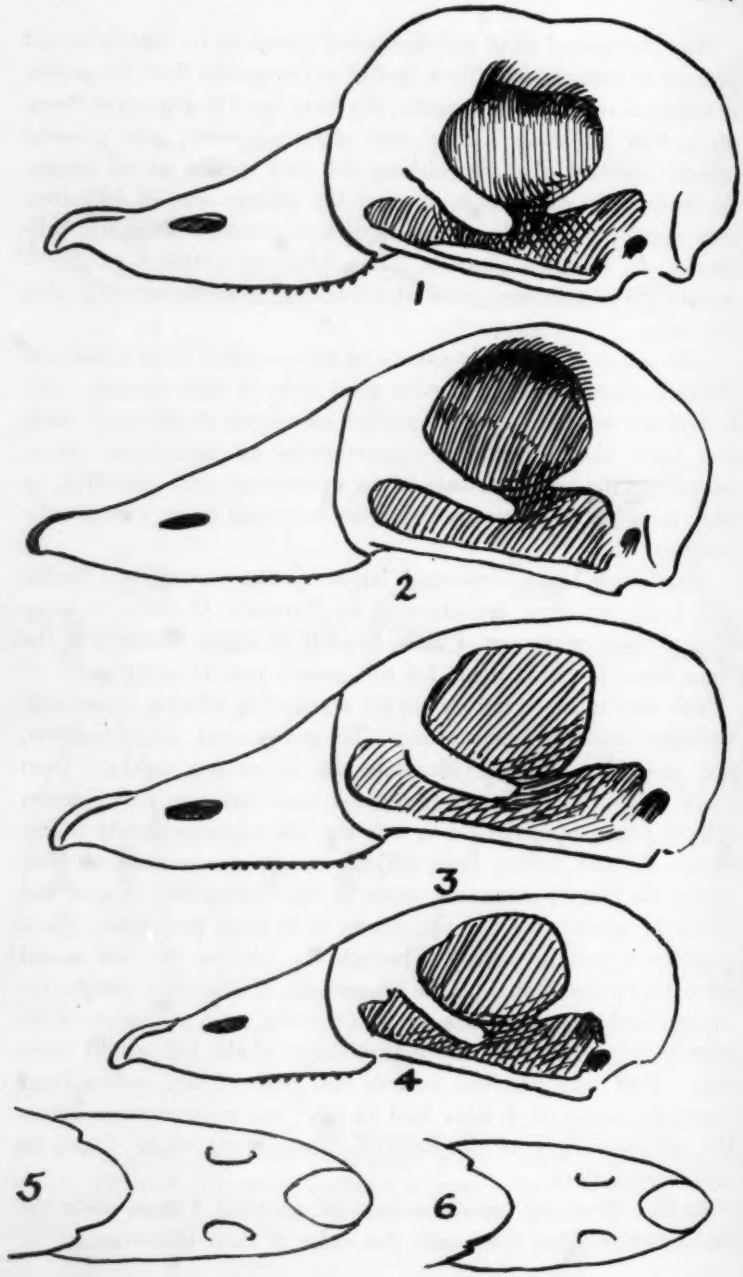
Now the sum of all of this discussion seems to be that it would be easy to wrongly identify a bird of either species from the works of reference available in America, nor do those of European authors, up to and including Millais' very elaborate work, give a really reliable method of distinguishing the two species at all stages. As their main distinction, that of the greater size of *islandica*, only applies when it is compared with the smaller old world subspecies, *C. clangula clangula*. The following attempt to differentiate them may also prove abortive, but it works out well with my series.

This series is small, as events of recent years have interfered with my plan of making a really good series of both species. Still I have eleven thoroughly identified specimens of the rarer bird, and have had exceptional opportunities of identifying these, by taking the paired female of an undoubted male *islandica*, or the young of the same species after watching them through the summer.

Also I have had a very much larger number through my hands, and since my first introduction to Barrow's Golden-eye some twenty-three years ago, I have lived in a region where it is the commonest breeding duck, for the greater part of my time.

This fact must be my excuse for attempting what is apparently a rather difficult undertaking. To get correct measurements, and ones that properly illustrate the differences, has not been easy. First, the nail has ill-defined boundaries in many cases. I have found it advisable to wet the bill to more clearly define these. Second, it has been difficult to get a measurement that shows the very pronounced taper of the bill in *islandica;* if the width is taken near the tip, where it is most prominent, there must be a definite point. Through the base of the nail would seem to be the best, but the longer nail of *islandica* brings this measurement further back in that species, and so makes them more nearly alike than the actual shape of the bill would indicate. Half way between nostrils and base of nail suffers from the same cause, so I have had to take the measurement across the anterior angle of the nostrils although the taper is not so pronounced there.

As Mr. Brewster has done (loc. cit. p. 159), I shall place the characters in what I consider the order of their importance.



1. Barrow's Golden-eye ♂ ad. April 15, 1911.
2. American Golden-eye ♂ ad. March 17, 1891.
3 and 5. Barrow's Golden-eye ♂ ad. October 15, 1913.
4 and 6. Barrow's Golden-eye ♀ ad. October 15, 1913.

Those relating only to adult males are disregarded as these can be separated by any one without difficulty.

1. *Nail. Americana*—Nail flattened or depressed, not conspicuously raised above the contour of the bill when viewed from the side, and not arched in its transverse section towards base.

Length of nail, ♂, less than .46 in., longest .44, shortest .38, average .406; ♀, less than .40, average .37.

Islandica—Nail arched in both longitudinal and transverse sections, showing as a conspicuous hump above the contour of the bill.

Length of nail, ♂, over .46, longest .53, shortest .48, average .508; ♀, over .40, longest .46, shortest .41, average .43.

2. *Shape of bill. Americana*—Bill not conspicuously tapered when viewed from above.

Width at a point through anterior angle of nostril, ♂, over .69, widest .82, narrowest .70, average .74; ♀, over .60, average .69.

Islandica—Bill conspicuously tapered, width taken as above, ♂, less than .69, widest .68, narrowest .63, average .65; ♀, less than .60, widest .59, narrowest .55, average .57.

3. *Color of head in* ♀. *Americana*—"Hair brown or grayish amber."

Islandica—"Deep sepia or purplish snuff brown." (Ridgway.)

4. *Shape of Skull. Americana*—Frontals continuing the slope of culmen, without trace of a bulge.

Islandica—Frontals conspicuously bulging in adult males, hardly less so in immature males of second year, bulge distinctly noticeable to the touch in adult females, and faintly so in juvenals.

Something might be made out of the amount of black at base of greater coverts. This is decidedly more in *islandica*, usually showing beyond the overlap of the lesser coverts, and sometimes covering the entire feather. In young males commencing to show the white cheek patch a crescentic formation is sometimes apparent in *americana*, this is due to the fact that the white feathers commence to come in along the edge of the bill, following the curve of its base, but it may be noted that this crescent is confined to the lower portion of the bill, in *islandica* it continues up to the mental angle, even in its first stages.

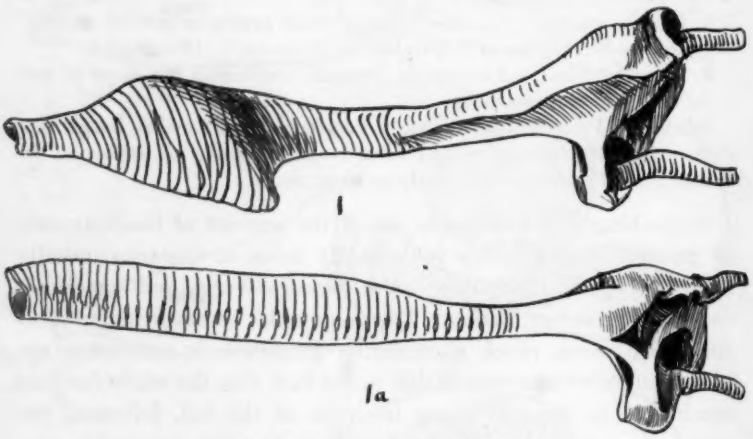
The diagrams of bills appended are drawn from dried specimens, as this will be the condition of most of the birds to be compared with them.

The tomia is apt to roll up and enclose the under mandible in drying, sometimes more on one side than the other, giving the bill a lop-sided appearance.

The top views of the bills of the juvenal male and female *islandica* show a greater length as these are made from skulls, where there is no feathering to cut off the extreme base when viewed in this manner.

The differences in the trachea have been commented on before, but it is as well to include them here, the figures illustrate these. The sketches of courting antics are from a notebook, and were made in the field. (Plates XV and XVI.)

The most common form of display in the drake is the 'swallowing' or 'gulping' action, this may or may not be followed by a kick which throws the water up behind. 'Chasing,' with the head close to or level with the water, and the body sunk, always occurs when one male invades another's territory. The pursuer often dives and comes up under the intruder who then makes off at great speed.



1. Trachea of American Golden-eye.
1a. Barrow's Golden-eye.

Continually between these antics the males preen themselves, frequently turning over on the back.

The females pay little attention to their lords, occasionally they approach bobbing or pumping their heads up and down, and turning the bill from side to side; more rarely they will join in the chase of an intruding male.

Quite often a female will turn her head around, tuck her bill away in the back feathers and calmly go to sleep, oblivious of the display of the drake who seemingly does not care whether his spouse looks at him or not.

Once in November I watched a lone drake going through the whole performance by himself—water-kick and all. When asleep the tail is held up at a good angle, though not such a conspicuous cant as is affected by Ruddy Ducks and Scoters when resting.

Barrow's Golden-eye is a common breeder throughout the arid interior of British Columbia, from the southern boundary north at least to lat. 54 , and from 1000 ft. altitude up to at least 6000 ft., wherever the mountain lakes are sufficiently clear of ice to allow them to rear a brood. I have only twice seen the common Golden-eye breeding in this region.

All the drakes, including those of the preceding year (which do not acquire the full plumage until their second autumn), leave for the coast before the middle of June, and before the young are hatched.

The bulk of the females and young follow them about the middle of September as in the case of the Harlequin Duck.

I have so far been unable to actually verify that they do so to the salt water, but hope to during the coming summer.

A few birds may be seen throughout the fall and winter, including adult males. I am inclined to believe these are not the birds that have bred here, but rather migrants from the northeastern districts.

I have found Barrow's Golden-eye fairly common at the coast in the winter, and much tamer than the common Golden-eye.

Oidemia americana. AMERICAN SCOTER.

In British Columbia this Scoter is an exclusively maritime duck, at least I have not come across a single reliable inland record. Not only is it a maritime bird, but it is seldom found in the small bays and inlets where the other species swarm, but frequents the exposed shores and outer reefs together with the Harlequin. It has many points in common with that duck, rising easily from the water and doing much flying about in small lots of four or five—mostly males—seemingly for the pleasure of flying, usually returning to the point they started from.

In flight the silvery under-surface of the primaries, in both sexes, is very conspicuous. In fine calm weather they call a great deal and their plaintive 'cour-loo' is the most musical of duck-cries, very different from the croaking notes of most diving ducks. While very strongly opposed to multiplying genera, I must agree with Dr. Dwight that this Scoter is hardly con-generic with the other two American species, this difference is most pronounced in its actions.

Oidemia deglandi. WHITE-WINGED SCOTER.

This duck throws a good deal of light on the movements of many of the sea-ducks, as its migrations are largely made by daylight. The northward movement is *en masse* in May and very early June, and a large proportion of the flocks migrate diagonally across country in a northeasterly direction. I think the bulk of the Mackenzie River Valley birds migrate across British Columbia. The sexes in the flocks at this time seem to be proportionate.

A few birds of all ages remain on the coast all through the summer—now breeding adults and young birds of the preceding year. Late in July and early in August small flocks of adult males return by the same route, and passing down the inland lakes they arrive on the coast and form very large flocks. As Dr. Dwight has recorded there is no eclipse in the Scoters, these birds are all in worn plumage.

Early in October comes the great migration of the females and young, these are usually in small lots of eight to a dozen—evidently the female with her brood.

They frequently remain on the inland lakes for a few days, forming larger flocks, and then pass on to the coast, a few adult males are with them. None breed in southern British Columbia.

Oidemia perspicillata. SURF SCOTER.

While this is not an exclusively maritime duck, like the American Scoter is with us, its migrations, while generally similar to those of the White-winged Scoter, are much more coastwise. A few, both adults and young, on both the Spring and Fall migrations, migrate across country, but for the real movement one should be about a mile off shore on the salt water.

Along the British Columbia coast for about two weeks in October there is a constant succession of flocks of females and young of this and the preceding species, the numbers that pass must be incalculable.

There is no reliable record of its breeding in the Province, although I have seen them vigorously courting in central British Columbia, well along in June; three or four males whirling about a female on the water like whirling beetles, and uttering a curious low, liquid note, like water dropping in a cavern. Large numbers of both this and the White-winged Scoter die from parasitic diseases (intestinal), but nothing to the thousands that are killed through contact with floating patches of crude oil at sea.

Okanagan Landing, B. C.

RELATIVE ABUNDANCE OF WILD DUCKS AT DELAVAN, WISCONSIN.

BY N. HOLLISTER.

RECENTLY, in looking over some old ducking records kept by myself and companions at Delavan, Wisconsin, it occurred to me that certain parts of these records are well worthy of permanent preservation. They furnish fairly accurate data on the relative abundance of many species of wild ducks at that time and may serve for important and instructive comparisons with similar figures which may be kept at some future period. It is evident that there has been a considerable change in the relative abundance of various species during the past twenty-five years, and it would be very interesting indeed if we had comparable records for the same region for still earlier times.

From the fall of 1892 until the fall of 1899, inclusive, we occupied a cottage at Delavan Lake each autumn and spring for a week or two of duck shooting. In a book provided for the purpose, complete records were kept of every game bird brought into this cottage. All of the shooting was over decoys in open

water, the blinds being built on the shore, usually on a point extending out into the lake. For this reason the cottage gun record is essentially an open-water record of deep-water ducks. The river ducks were not commonly obtained in such places and comparatively few of them were included in the bags.

In all, 701 ducks, besides geese, snipe, and other game birds, are listed in these records, the species carefully distinguished by their local names. Unfortunately, though, the common practice of duck hunters of lumping the Greater and Lesser Scaups and the Ring-neck under the common name of 'Blue-bill,' was followed in our cottage game book. Although we recognized the three species perfectly we simply followed general custom in keeping them together in such records. From my own recollection, and I examined practically every bird recorded, as well as from a study of my personal ornithological journal covering these years, I should judge that the 270 'Blue-bills' listed in the lake records should be divided about as follows: Lesser Scaup, 60 per cent.; Ring-neck, 35 per cent.; and Greater Scaup, 5 per cent. Sometimes the Lesser Scaup was the commonest, and again, for an entire week, the Ring-neck far outnumbered the other 'Blue-bills.' I find, for instance, in my own bird journal, under general remarks covering the first two weeks of November, 1895, at Delavan Lake, the following:

> Ducks were very abundant, even older hunters say they never saw blue-bills so plentiful. The air was fairly dark with them at times; fully 500 or even 1,000 Lesser Scaups to one of any other kind. Did not see a Ring-neck during the two weeks, although this is usually a common species. There were more American Scaups [Greater Scaups] than I have ever seen before, indeed they might almost be said to be common. A few Canvas-backs, Red-heads, Butter-balls, Hooded Mergansers, Golden-eyes, Red-breasted and American Mergansers, Green-wings, Mallards, and Pintails. Canada and Snow Geese common, especially the first; a few Swans also.

Records for a number of successive years must therefore be kept to give any reasonably accurate figures on the relative abundance of the species. Almost every season is exceptional as regards some particular species; either some kind is unusually abundant or some kind is unaccountably rare.

Since these cottage records give us comparable figures only for the deep-water and so-called sea-ducks, I have carefully gone over my daily bird journals for the same eight years—1892–1899—and listed all ducks mentioned, additional to those listed at the lake cottage. These include ducks shot by myself and companions, if I was in company, and such others as were brought to me by sportsmen friends to add to my collection of local birds. These ducks, totalling in number 466, added to the records of the cottage at the lake, give us a fair average for all species and all sorts and conditions of shooting—lakes, marshes, prairie, creeks, and woodland ponds. The total figures, including 1167 ducks, may, I think, be taken as fairly representative of the place at that time. In my own journals I have usually discriminated between the Scaups and the Ring-neck, and in the following totals I have divided the 'Blue-bills' listed in the cottage gun records according to my above estimates as to their relative abundance, on the average, over the eight years period.

Below is a combined list of the 1167 ducks, arranged in the order of numbers handled, with the relative approximate abundance on basis of 100, following the method used by Mr. Aldo Leopold for the ducks of the Rio Grande Valley,[1] in the second column of figures.

RECORD OF 1167 WILD DUCKS KILLED NEAR DELAVAN, WISCONSIN, FROM 1892 TO 1899.

Species	Number recorded	Relative Abundance per 100
Lesser Scaup Duck (*Marila affinis*).....	182	15.6
Hooded Merganser (*Lophodytes cucullatus*)..	156	13.4
Ring-necked Duck (*Marila collaris*).....	111	9.6
Mallard (*Anas platyrhynchos*).....	101	8.7
Buffle-head (*Charitonetta albeola*).....	96	8.2
Golden-eye (*Clangula clangula americana*)...	70	6.0
Green-winged Teal (*Nettion carolinense*).....	68	5.8
Wood Duck (*Aix sponsa*).....	61	5.3
Blue-winged Teal (*Querquedula discors*).....	49	4.2
Shoveller (*Spatula clypeata*).....	36	3.1

[1] Condor, vol. 21, p, 122. May, 1919.

Canvas-back (*Marila valisineria*)	34	2.9
Pintail (*Dafila acuta*)	32	2.7
Baldpate (*Mareca americana*)	30	2.51
Redhead (*Marila americana*)	30	2.51
Red-breasted Merganser (*Mergus serrator*)	25	2.14
Greater Scaup Duck (*Marila marila*)	20	1.71
Ruddy Duck (*Erismatura jamaicensis*)	18	1.54
American Merganser (*Mergus americanus*)	13	1.11
Gadwall (*Chaulelasmus streperus*)	10	0.85
Old-squaw (*Harelda hyemalis*)	8	0.71
American Scoter (*Oidemia americana*)	6	0.49
White-winged Scoter (*Oidemia deglandi*)	4	0.34
Black Duck (*Anas rubripes*)	4	0.34
Surf Scoter (*Oidemia perspicillata*)	3	0.25
	1,167	100 per cent

In estimating the actual relative abundance of the birds, from records of this kind, allowance must be made, of course, for the size of the flocks; as mentioned by Mr. Leopold in the paper above cited. The Golden-eyes, Buffleheads, and Hooded Mergansers, for instance, commonly occur in small groups, and the proportion killed to those seen is far greater than in the case of the 'Blue-bills,' which frequently decoy in very large flocks. The ducks which habitually gather in small bunches are consequently much more rapidly reduced in numbers on an open lake than are the species that occur in great flocks.

Some of the species run about even in the records for spring and fall. With others, the Lesser Scaup and Pintail for instance, the figures for spring greatly outnumber those for autumn. If the Pintail had beeen as abundant in fall as it was in spring it would have ranked much higher in the above list. The Mallard, Teals, and Wood Duck were protected in spring in Wisconsin during all this period, and consequently were not regularly hunted at that season; so that the figures for these birds are relatively low as compared to those for some other species, like the Canvas-back, Baldpate, and Redhead, which were taken in about equal numbers during spring and fall migrations. The Hooded Merganser, Buffle-head, and Golden-eye were most commonly killed in fall, as follows:

Season	Hooded Merganser	Buffle-head	Golden-eye
Spring (1893–1899).....	14	22	18
Autumn (1892–1899).....	142	74	52
	156	96	70

It is doubtful if records for the present or for any future period will give anything like the above relative abundance. That the records may be equalled in numbers is entirely possible, as they are by no means large as such records go; but I do not believe that ever again will the Hooded Merganser, Buffle-head, or Golden-eye stand so near the top of such a list. These three species have suffered a greater reduction proportionally than have most of the other ducks. On the other hand, the Canvas-back and Redhead are much more common on Delavan Lake than they were during the period covered by this report; and the Black Duck, in that region, is now increasing in numbers year by year. A successful planting of wild celery in the lake accounts for the increase in the Canvas-back and Redhead; but only a general western extension in the regular distribution of the Black Duck would seem to explain the more common occurrence of that species.

Spring shooting, we all hope, has been permanently abolished, and under careful protection ducks may, on the whole, increase in numbers in North America; but certain species, if they do not actually disappear from our fauna, will undoubtedly become very rare within a comparatively short time. There must be, scattered throughout the country, many records of gun clubs, or of individual sportsmen, that might be consulted by those who have the opportunity. If the species are properly distinguished in the lists, accurate data on the former relative abundance of various species of wild ducks may be obtained from them. This exact information can be had from no other source, and in view of the still greater changes that are to be expected in the future, it will become of very great interest and value.

National Zoological Park, Washington, D. C.

RECOLLECTIONS OF AUDUBON PARK.

BY GEORGE BIRD GRINNELL.

Plates XVII–XVIII.

THE interest which we all feel in John James Audubon, and in those connected with him, must plead my excuse for writing this and for the too frequent use of the first person singular.

I spent my boyhood in Audubon Park, and what I have to say relates to members of the Audubon family and chiefly to the woman to whom—quite as much as to her husband—we owe the greatest work on ornithology that America has produced. I should like to give you some impression of the personality of Madam Audubon and her son, John Woodhouse, and to make you see the surroundings of their later lives somewhat as I recall them.

Lucy Bakewell Audubon was a fit mate for her great husband, for her steadfastness and determination supplied qualities which in some degree he lacked. I believe that of the two she was the stronger—as she was the better balanced—character. If she did not have her husband's vivacity, charm, versatility and artistic talent, she possessed characteristics more important: the force to keep him up to his work, the faith to cheer his heart when discouraged, the industry and patience to earn money that he might continue his struggle, and the unyielding will to hold the family together. It was largely through her assistance and support that at last he won success.

A few years after the death of Audubon my father moved to Audubon Park. I was a very small boy about far enough advanced in polite learning to know A from B. At that time Madam Audubon conducted a little school for her grandchildren, which was attended also by some of the neighbors' children, of whom I was one. It was my first attendance at a school.

Except for two houses with the plots of land about them, the whole tract of Minnie's Land, or Audubon Park, then belonged to Madam Audubon. Victor, the eldest son, was bedridden as the result of an accident, and John Woodhouse, a man of great energy,

MRS. LUCY BAKEWELL AUDUBON

managed the property and looked after the sale of the books. The family had abundant land, which was more or less encumbered and quite unsalable, but its resources in money were small and uncertain. I have a vivid memory of an occasion when my father took me with him when he went to see Madam Audubon to conclude the purchase of a piece of land, and of the great relief, satisfaction, and even gratitude, that she expressed to him for his willingness to make the purchase. The scene touched me, even though for years afterward I did not understand its meaning.

John W. Audubon was quite without business training, but he worked hard and faithfully to relieve the family embarrassment. He built several houses in Audubon Park, which were sold or rented, and in a field east of what is now Broadway, built a large frame house which for some years was occupied as a tenement by workmen in the nearby sugar refinery. All these things brought in some money, but there was always a heavy burden of debt.

Madam Audubon was a most kindly, gentle, benignant woman. She was loved and admired by everyone and—by most people—I think a little feared, for she had the repose and dignity of a great lady, and was not given to jokes or laughter. With the children she unbent far more than with older people, and they loved her dearly, and took their small troubles to her with the utmost confidence. Yet the children too stood a little in awe of her, and in her presence were never mischievous or playful at inopportune times. Her grandchildren, of course, called her Grandma, and she became Grandma to many other little ones of different blood.

She lived with her son Victor and the school was carried on in her bedroom, the southeast corner of the second floor of that house. In the schoolroom she was tireless, passing from one child to another, seeing that each was properly at work, helping, explaining, encouraging. During the hours of school each child received a personal supervision that was practically continuous.

She was tall, slender, erect, always clad in black, and always wore her white cap. I never saw her without her spectacles.

The Audubon Park of that day was quite different from what it became later. Except for the land about the Audubon houses, near the river, and that immediately about two houses higher up on the hill, it was a tangle of underbrush and saplings, above

which rose many forest trees, some of them of great size. Much of the land between the present 155th and 157th Streets was overgrown with thick-standing young hemlocks, and no grass grew on the shaded ground. North of 157th Street were the "near woods," so-called, through which ran a brook, and this tract remained wild and unimproved until the year 1870, when it was added to Audubon Park. To the north of 158th Street was a larger piece of woodland. Great white pines stood about the Audubon houses, and on one of them grew a vine of fox grapes, some of which the children always managed to get, after the first hard frost of autumn.

At a little distance from the houses the Hudson River Railroad ran across a wide cove, on an embankment, and the tide from the river rose and fell in the ponds lying between this causeway and the old river bank. In these ponds the boys fished for killies and eels, and in summer went crabbing. In winter the quiet water froze and we had good skating. The ponds were long ago filled up and even their memory has passed away.

The interior of the Audubon House was attractive—an old-fashioned country house, more or less worn and shabby from the tramping and play of a multitude of children. In the hall were antlers of elk and deer, which supported guns, shot pouches, powder flasks, and belts. Pictures that now are famous hung on the walls. In the dining-room facing the entrance from the hall, was the portrait of the naturalist and his dog, painted by John Woodhouse Audubon. The painting of pheasants started by a dog—now in the American Museum—was in the parlor south of the hall, and the picture of the eagle and the lamb upstairs in Madam Audubon's bedroom. Everywhere were vivid reminders of the former owner of the land.

To the north of the Victor Audubon and east of the John Audubon house, on a hillock, was the wooden building with a cellar known as "the cave," where some of the old copper plates were stored for a time. This building was always locked, and the boys seldom had an opportunity to look into it, except when John Audubon opened it and they were permitted to follow him in. John Harden, the man who boxed these plates, died last summer in his eighty-ninth year, on the very borders of Audubon Park, where he had lived for sixty-seven years.

Grandma Audubon gave me my first conscious lesson about birds. I cannot remember a time when the common names of the more familiar species were not known to me, though I presume the list was not a long one. It included, however, the passenger pigeon, which was seen in the dogwood trees each autumn, and the white-headed eagle, which in winter was extremely abundant on the floating ice of the river and sometimes brought its captive fish to the trees in the park, there to eat them or as often to quarrel about them with its fellows, and sometimes to drop the prey.

One of my early recollections is of being called from the breakfast table one morning to look at a large flock of Passenger Pigeons that was feeding in a dogwood tree twenty-five or thirty feet from the house. There were so many of the birds that all could not alight in it, and many kept fluttering about while others fed on the ground, eating the berries knocked off by those above.

Thirty years ago an account was printed in 'The Auk' by Mr. Geo. N. Lawrence of birds at Manhattanville before 1850. Audubon Park was only a mile above Manhattanville, and fifteen or twenty years later than the time written of by Mr. Lawrence, conditions there had not changed. The region was still untouched country. The City of New York had not begun its northward march. On Sixth Avenue the pavements stopped at 23rd Street, and on Broadway the dirt road began at 36th Street.

It was Grandma Audubon who, when I was a little fellow, identified for me a bird that I had never seen before. One morning in late winter, or early spring, on my way to school I had almost reached the Victor Audubon house, when I saw a dozen or twenty small greenish birds feeding on the grass under a pine tree. I approached them slowly, trying to see what they were; and they did not fly, even when I was within a few feet of them. I did not know them, and they were so tame that I resolved to try to catch one. The crabnet used in summer always hung in the area under the Victor Audubon piazza, and backing away from the birds I ran there, secured the net, and returned. It was not difficult for a cautious lad to get near enough to the little birds to pass the net over one, and when I had caught it I rushed into the house and up to Grandma's room, and showed her my prize. She told me that the bird was a Red Crossbill—a young

one—pointed out the peculiarities of the bill, told me something about the bird's life, and later showed me a picture of it. Then after a little talk she and I went downstairs and out of doors, found the birds still feeding there, and set the captive free.

Two or three years later Mr. John Audubon performed a like service for a small companion and me. Neither of the two boys was as yet permitted to carry a gun. But, like some other boys, they managed now and then to get hold of guns, borrowed or stolen, and to go shooting. In the large piece of woods north of 158th Street we saw a flock of birds fly up into a tulip tree, and recognized them as 'pigeons,' but small ones. It happened to be my turn to use the gun, and after appropriate care in stalking I killed one of the flock. As we had supposed, it was a 'pigeon,' unlike those we knew, yet one whose picture we had seen. We found the plate of the bird—a Ground Dove—and to make sure we were right, took the bird to Mr. John Audubon who was mending fence at the corner of 158th Street and Riker's 12th Avenue, and asked him what it was. He looked at it with interest, and told us that it was a Ground Dove, adding that there were many of them further south, but that he had never seen one here before. This may have been in the autumn of 1860 or 1861—not in 1862 as I have said earlier.

After a year or two of attendance at Madam Audubon's school I was sent to a boys' school. For years, however, I took lessons in music and French from a granddaughter of Madam Audubon, daughter of John Woodhouse and granddaughter of Rev. John Bachman, and was always in close association with the family.

A favorite playground of the boys of Audubon Park was the loft of John Woodhouse's barn, where, piled up against the walls, were rows of wooden boxes full of bird skins, collected by the naturalist and his sons. We had been told not to meddle with these, and usually obeyed the injunction, knowing that if we did any harm, this playground would be closed to us. Here in the barn, too, were piles of the old red muslin bound 'Ornithological Biography.' One of these sets was given my father perhaps sixty years ago, but unfortunately the old red covers have been torn off and something more modern substituted for them.

One day in winter a great pine tree in front of the Victor Audubon house was cut down and while splitting it into lengths for

JOHN WOODHOUSE AUDUBON

Dear young friend
George Grinnell
If we should be by
accident in our journey,
I was help you can
take possession of the
Eagle & Lamb, with
all the care & esteem
for yourself & Parents
that is possible for our
hearts to feel — Lastly
we get safe the Eagle &
Lamb will be our
will for you —
Farewell & for your friend
Lucy Audubon. —

LETTER FROM MRS. AUDUBUN TO GEORGE BIRD GRINNELL

fuel the men found, almost in the center of the trunk, a cluster of small round black objects which proved to be leaden bullets—rifle balls. We boys were tremendously excited by the find and imagined an Indian tragedy where the captive was tied to the tree and tortured by being shot at, as was a common practice of the savage, according to the dime novels of the day. When Mr. John Audubon came up and saw the bullets and the wood, he recalled that many years before his father, some visitors and he had shot rifle at a target tacked upon this tree trunk, and here were the balls revealed by the ax.

When I was twelve or thirteen years old, some of us were given guns and made weekly excursions—no longer secret ones—after the robins, yellow hammers, and wild pigeons that during the fall migration congregated in the berry-bearing trees that were so abundant in the woods. At a somewhat later date the boys in autumn used to go up on the roof of our house and shoot at the wild pigeons passing over. Sometimes we killed several in a day, though there was much waste of ammunition.

With Jack Audubon, son of John Woodhouse, and the oldest grandson of the naturalist, I often in winter and spring went over to the Harlem River to lie in wait for muskrats on an arm of the river, which, if it existed today, would cover the old Polo Grounds —155–157th Streets and 8th Avenue—and run back about to the present 145th Street, west of 8th Avenue.

In those days wild ducks were often seen in spring and fall along the lower Hudson. Usually they were out of the reach of small boys, though I remember that Jack Audubon killed a Blue-winged Teal on the Hudson in the early 60's. Nevertheless, when we made excursions up to Dyckman's Flats we occasionally killed in the marshes there and along the Harlem River, a wood duck, teal or black duck, but such great game was most unusual. Almost always at the proper season of the year there were many small shore birds on the Dyckman marshes, which the little boys hunted faithfully. English Snipe were often started there, but I do not know that any of us ever killed one. Sometimes we went as far as "Bronson's"—now Van Cortland Park—where quail were started and an osprey had its nest in a tall tree that no one could climb.

I saw John Woodhouse Audubon almost daily, for as a playmate of his sons I was always in and out of his house, and besides, he was a close friend of my father, and often in the evening came to our house. He was a most kindly man, but sometimes spoke quickly and I was a little afraid of him. If he felt like coming up to our house in the evening he came out of his door and stood before his house, a hundred yards distant from ours, and shouted my father's name, and when answered called out, "If you have nothing to do, I'll come up and play you a game of billiards." A little later he appeared, hatless and without overcoat, often powdered with snow if it was storming, and shod with old-fashioned carpet slippers from which he stamped the snow as he opened the front door.

Often John Audubon painted in the barn, and the boys stood at a little distance and in silence watched him as the subject grew under his brush. He had a beautiful mare, Donna, of which he was very fond, that he painted.

Often he received natural history specimens from a distance and we boys gathered about him and with breathless interest waited to see what wonderful things he would draw forth from his boxes. I recall especially a great white arctic hare that he held up for us to see, which to my wondering eyes seemed longer than I was tall. With the hare were some dark colored birds, which must have been Spruce Grouse, and some white Ptarmigan—strange creatures from the North.

The picture of the eagle and the lamb always possessed a fascination for me. I greatly admired it and often talked about it to Grandma Audubon, and on one occasion she told me that after her death the picture should be mine. Boylike, I treasured this memory, but the promise was not again referred to. However, on the day that Madam Audubon departed for Louisville, September 18, 1873, I received from her a note, perhaps one of the last she ever penned, which said that in case of accident to her on her journey south I should take possession of the eagle and the lamb, and that if she and her granddaughter safely reached their destination the picture would be in her will for me. It now hangs in my house.

I never again saw Grandma Audubon, for in 1874 she died—full of years. She was a great woman and as good as great. The

help she gave to the people about her who needed it—rich as well as poor—will be remembered as long as those who knew her shall live. Some tributes to her greatness have been printed—but no words, written or spoken, can ever tell of all the good she did.

238 E. Fifteenth St., New York, N. Y.

COURTSHIP IN BIRDS.

BY CHARLES W. TOWNSEND, M. D.

THE difference between the mentality of birds and of man is enormous and we must be on our guard against imputing purely human motive to the lower animals. On the other hand the difference between man and the lower animals in many important matters is not one of kind, but one merely of degree.

A gull will drag a dried fish from the upper beach to the water to soften it before eating, a grackle will dip a tough bit of biscuit in the water for the same purpose, and a man will soften a hard crust in his coffee. How much is sub-conscious instinct or reflex action in some or all of these cases and how much is self-conscious reasoning and forethought—it is not my purpose to discuss here. To call it instinct in all cases in the lower animals and reason in all cases in man may possibly savor of conceit.

The desire to live, to obtain food and to mate are primitive inborn instincts common to both the lower animals and to man. To gratify these instincts similar actions are resorted to by both the lower animals and man. The actions of a child desiring food from a table and those of a dog under the same circumstances are very much alike. Each appeals by voice and actions for the food, each is anxious to please the owner of the food, and each—unless the point has been reached in its experience of life when it fears the consequences of unlawful acts—will avail itself of an opportunity to surreptitiously snatch the food.

In the same way the desire of the male bird to please the female more than its rivals please the same bird appeals to us as a very

reasonable and very human point of view. This is what leads to courtship, and in this courtship rivalry it is natural to suppose that the best bird wins. Although it has been somewhat the fashion of late to decry Darwin's theory of sexual selection and to substitute others for it, its simplicity and common sense still appeal to many, and it is worth while occasionally to consult the original text.

Darwin published his 'Origin of Species' in 1859. In Chapter IV he says he is led "to say a few words on what I have called Sexual Selection. This form of selection depends, not on a struggle for existence in relation to other organic beings or to external conditions, but on a struggle between the individuals of one sex, generally the males, for the possession of the other sex. The result is not death to the unsuccessful competitor, but few or no offspring. Sexual selection is, therefore, less rigorous than natural selection. Generally, the most vigorous males, those which are best fitted for their places in nature, will leave most progeny. But in many cases, victory depends not so much on general vigor, as on having special weapons confined to the male sex. A hornless stag or spurless cock would have a poor chance of leaving numerous offspring.

"Amongst birds, the contest is often of a more peaceful character. All those who have attended to the subject, believe that there is the severest rivalry between the males of many species to attract, by singing, the females. The rock-thrush of Guiana, birds of paradise, and some others, congregate; and successive males display with the most elaborate care, and show off in the best manner their gorgeous plumage; they likewise perform strange antics before the females, which, standing by as spectators, at last choose the most attractive partner.

"I cannot here enter on the necessary details; but if man can in a short time give beauty and an elegant carriage to his bantams, according to his standard of beauty, I can see no good reason to doubt that female birds, by selecting, during thousands of generations, the most melodious or beautiful males, according to their standard of beauty, might produce a marked effect."

Eliot Howard,[1] on the other hand, believes that display and extravagant bodily antics are merely "reflex actions directly re-

[1] The British Warblers.

sulting from any excessive excitement, that they are not confined solely to courtship and do not in any way influence the female." The fact that the brilliantly arrayed male Argus Pheasant and the dull-colored Savin's Warbler both spread out and raise their wings and tails during courtship seem to Howard a strong argument against sexual selection.

Pycraft[1] says, "In these pages it is contended that neither brilliant coloration nor any other form of ornamentation is to be ascribed to the direct action of 'sexual selection.' That is to say such conspicuous features have not been dependent on the action of formal choice for their survival and development, but are rather the 'expression points' of the internal, inherent growth variations, which, not being inimical to the welfare of the species, have been free to pursue their development in any direction which apparent chance may dictate." In another place he says: "The frills and furbelows"—crests, vivid hues, etc., can—"be traced to the stimulating action of the 'hormones' which control both pigmentation and structure, as is shown by the fact that both are modified by any interference with the glands in question. Such ornamental features then are the concomitants, not the results, of sexual selection," and again "sexual selection, other things being equal, operates by according the greatest number of descendants to the most amorous and not necessarily to those of the highest hues." He is therefore willing to admit that amorous behavior by song and dance and display of plumage influence and attract the female but he objects to the bold statement that she selects the male. Such mental qualifications satisfy those who would cast aside Darwin's theory of sexual selection, but after all is said this theory, if not taken too literally, explains the facts better than any other. It is not necessary to assume that the female critically examines the display of color, dance or song of the rivals and balances them in her mind, but if we admit, as Pycraft is willing to do, that she is attracted and influenced by these, even if only in a reflex or sub-conscious way, we have practically admitted the truth of Darwin's theory. The fittest male in any or all of these respects will be more likely to perpetuate the race.

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[1] Courtship of Animals.

The motives of display of color, dance and song are easily understood, for in one form or another they have all been used in human courtship. The likenesses are fundamental and extend from the lowest to the highest in the human species, but are most strikingly seen in the lowest, more primitive races.

Although at the present day and among the highest developed human races the display of bright colors is more marked among the females than the males, it must be remembered that this is a recent development. Only a few generations back the males, instead of wearing black or sombre clothing, were as brilliantly apparelled as the females, and among savages it is the male that is strikingly bedecked with feathers, tatoo markings and paint, while the female is quiet enough in her apparel or lack of apparel. The tendency of the highly civilized male to revert to brilliant display of clothing is shown in his fondness for military finery and for striking colors when he is freed from the restraining hand of convention, as witness the cow-boy and the sportsman.

In both bird and man the display of bright colors and attractive patterns, the dance and the song, even if of courtship origin and competitive in character, may lose the conscious sexual side and be continued at other times for mere pleasure, in other words the original incentive for display, song and dance may be entirely lost, but that does not seem to me to be any argument against the theory of sexual selection.

The explanation of the brilliant colors of male birds on a mere physico-chemical basis due to exuberance of vitality, the maleness of the males, or the stimulation of the hormones in the courtship season fails to account for the fact that the brilliance of display in this season may occur without the growth of new feathers, but merely by the wearing down of old feathers and the unveiling of concealed patterns. This is true in the case of the Snow Bunting, the Junco and the Chewink, and is strikingly shown in the case of the English Sparrow, where the process goes on all unnoticed at our feet.

The ultra-concealing-colorationists say that the brilliant colors serve to conceal, but one who has watched Eiders in the north, even though he admits that the green and white and black may match the iceberg and the sea and the rocks, is as sure that the

colors are for display and for conspicuousness as he is that black is black and white is white. The speed with which the male discards his brilliant dress when the spring madness is over seems to bear him out in this opinion.

A recent writer[1] in 'The Auk' states his opinion, that the brilliant colors and markings of the group of warblers "act as a uniform, facilitating the recognition by a bird of its own kind just as they facilitate its recognition by a bird student." How then does he account for the fact that the females and young, who need most to be identified, are most obscurely marked, and who can doubt that birds can not only identify their own species with ease no matter how poorly marked, but can pick out even their own offspring from others? Does a Chinese woman have any difficulty in recognizing her own offspring in a group of hundreds, all similarly dressed and looking alike as peas to our untrained eyes? Or, to bring the matter nearer home, watch a mother enter a school-yard in which a hundred small children all of the same age and dress are playing. She picks out her own child, brushes its dress and wipes its nose with a perfect certainty of conviction as to its identification, but if asked for the field marks, is unable to give them.

That the brilliant colors and markings of birds are of use in courtship and that many of them are the slow result of sexual selection seems to me to be a reasonable supposition because the male bird in courtship always displays these colors and markings to the best advantage. Where two or more males, as is often the case, are eagerly doing their best in display it would seem natural that the one who makes the most display is more likely to excite and win the female. If this were not the case the display would fall into innocuous desuetude. Mr. William Brewster once told me the interesting case of a pair of Summer Tanagers in the south where he shot the male. In a short time the female appeared with another male. This one also he shot and so on until he had obtained three or four of this female's spouses. On careful examination of plumage it was seen that the most brilliant plumage was possessed by number one and that the brilliancy decreased successively in the others.

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[1] J. T. Nichols. Auk, 1912, XXXVI, P. 228.

The fact that the brilliant plumage is assumed in many birds for the nuptial season only seems to bear out the importance of display for courtship. The ducks go into the eclipse plumage immediately after the courtship season. The brilliantly marked male Wood Duck and the Eider alike assume the modest and quiet dress of the female. This is true of many other birds. The Bobolink and the Scarlet Tanager, the Goldfinch and the Myrtle Warbler doff their striking dress in the fall and appear in the modest apparel of the female and immature.

Courtship means the act of wooing in love. Whatever theory we accept we must admit that the male *appears* to endeavor to attract the female in one or all of three ways: first by a *display* of bright or striking colors, secondly by postures or movements which accentuate this display or call attention to his agility or skill—in other words by the *dance* in its broadest sense—and thirdly by sounds either vocal or instrumental—*song* in its broadest sense.

The classical courtship of the Peacock illustrates in an extreme form the display of color. It also includes the two other factors of dance and song. It may well be sketched here as an exaggerated form and epitome of our subject.

In the presence of the hen and when in an amorous mood the Peacock erects the stiff tail feathers which support the marvelous plumes that arise from the back and form the upper tail coverts. He walks with mincing steps, turning this way and then that, so that his beauty may be seen from all points by the hen who walks carelessly by. Seen from in front, his blue-green head and neck with black and white face markings and tufted plumes stand out like a Chinese jade carving in the center of a concave seashell of shimmering green, embossed at regular intervals with eyes of marvelous beauty and detail. From behind, the stiff gray tail feathers supporting the shell are seen to be set off below by an abundance of black and white down. The wings of brown and blue frame the sides. Suddenly the Peacock turns and flashes the full radiance of his beauty directly at the hen, he vibrates his downward stretched wings and quivers his stiff tail feathers so that they give forth a sound of rattling reeds. The green disk is thereby set all of a tremble in time with this instrumental music,

the great bird bows towards the object of his affection, emits a raucous cry, and the green, quivering sea shell curves beseechingly towards her. Who can resist such fascination?

But all birds are not so well fitted for display as the Peacock who appears to have reached the very acme in this direction, but a study of some of the less brilliant birds bears out, perhaps more clearly, the efforts of the male in display. The male Red-winged Blackbird, when engaged in feeding on the ground, appears as a simple black bird. Sometimes not a trace of color is visible, although he may show a narrow yellow line or a somewhat broader line with red in it on his shoulders. When engaged in courtship these same shoulders blaze with scarlet color. Not only are the surrounding black feathers pushed back so that the epaulets are broad and conspicuous, but each individual scarlet feather is erected and the epaulets are thick and striking. Not only that, but he flies slowly and directly towards the female and the beauty spots are displayed to her eyes, if she will but bestow a glance at them, under the most favorable and dazzling circumstances.

The male Eider swimming about and bowing to the female suddenly rises up on his tail in the water and flashes out the magnificent jet black shield on his belly, a color that ought not to be there according to the concealing colorationists. In the same way the Merganser drake displays his splendid white shirt front with its delicate tinge of salmon pink.

The male Bittern, as he strides about, extends the fluffy white feathers from under the wings in striking display. The male Blue-headed Vireo puffs out the yellow flank feathers till he seems nearly double the size of the slender female, and the Myrtle Warbler droops his wings to display his yellow rump and puffs out the yellow and black feathers on his sides.

The Black Guillemot as he courtesies to the female in the water opens wide his mouth and displays for her admiration the scarlet lining. The display of the inflated orange-colored neck-sacks of the Heath Hen is but a small part of the remarkable courtship display of this bird.

The Black Duck and the Domestic Pigeon in the ardor of courtship take short flights by the females and the white lining of their wings become momentarily in evidence. The Golden-eye drake

displays from time to time his brilliant orange-yellow tarsi and feet above the water as he performs his song and dance before the modest duck. Incidentally, and perhaps accidentally at first, he increases the display by the spurt of water caused by the movement of the foot. In the Merganser this spurt of water has evidently become of primary importance and is a most conspicuous feature, but it is plain that it arose from an endeavor to display a colored foot. From a display of color it has become a form of a dance with an added mechanical feature. All three factors of courtship are so intricately mingled that it is not always possible to treat of a single one alone.

Secondly the dance, using the word in the broadest sense, is frequently employed in avian courtship. In the simplest form the bird spreads its tail, slightly opens its wings and puffs out its feathers. This may be done rhythmically, and, with each motion, the song is emitted, for song and dance are almost always associated. The Bronzed Grackle illustrates this simple dance and at the same time very simple song. In slightly more elaborate form the bird may also bob its head and with still more elaboration swing or sway its whole body or jump up and down. The Blue-headed Vireo, for example, bobs and bows in addition to puffing out its yellow flanks, the Cowbird, besides puffing and spreading, bobs its head and swings its whole body, the Bluebird in the excitement of courtship jumps up and down on its perch and the Flicker bobs and courtesies in true cake-walk fashion.

That the dance does not necessarily mean leg movements is exemplified not only by birds but by various primitive human races where posturing and movements of the head, arms and trunk may constitute a large part of the performance. Among the ducks the movements of the head and neck are sometimes very striking and bizarre. The Golden-eye, besides performing with its feet in the way already described, has a remarkable head and neck dance and posturing in the courtship. The drake extends its head and neck straight forward like a bowsprit, then vertically upwards, then backwards so that the occiput rests on the rump, and lastly forward to the normal position. Black Ducks, Baldpates, Buffle-heads and others make short springs and flights from the water; Mallards, Scaups and Pintails bob

or bow and Red-breasted Mergansers courtesy with a swinging dip of the whole body. Bowing and courtesying are as common in avian as in human courtship.

Among our birds the Gannet has perhaps the most elaborate dance, one that in completeness and in many of its features suggests the dance of the Laysan Albatross so well described by Prof. W. K. Fisher.[1] It is worth while describing this dance of the Gannets in detail, for, as far as I can discover, there is no description of it in any American ornithology and I have found no mention of it in the pages of the 'Nuttall Bulletin' or 'The Auk.' Mr. P. A. Taverner[2] is the only one in this country who has referred to this dance as far as I know, and his description is very brief and omits many of the most interesting details. He calls it "a sort of conventionalized ritual." A fuller description is given by Mr. J. H. Gurney[3] in his monograph on the Gannet. He says: "This sort of thing can be seen, with variations, any fine day in July, on the Bass Rock, but it cannot be the affection of courtship, because the courting season is passed." He ascribes it to the affection of the Gannets for each other.

The bowing and posturing and other strange antics of the Layson Albatross is spoken of by Prof. Fisher as "a curious dance, or perhaps more appropriately a cake-walk," and he goes on to say: "This game or whatever one may wish to call it very likely originated in past time during the courting season, but it certainly has long since lost any such significance. I believe the birds now practise these antics for the pure fun they derive." These remarks I believe apply exactly to the dance of the Gannets. I spent many hours this last summer under most favorable conditions near the great Gannet nesting ledges on the Cliffs of Bonaventure Island, P. Q., and I saw the dance repeated by hundreds of pairs many times and I came to the conclusion that Prof. Fisher did in the case of the Layson Albatross, namely that it was originally a courtship dance and that it was continued from habit and from the joy of it, in the same way that the Song Sparrow continues to sing long after the nuptial season.

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[1] Auk, XXI, 1904, pp. 8-20.
[2] The Gannets of Bonaventure Island, Ottawa Naturalist, XXXII, 1918, p. 24.
[3] The Gannet, p. 377.

Let me describe a typical performance: As the sexes are alike in plumage they cannot be distinguished apart. One of them, we will assume it is the male, is swinging around in great circles on rigidly outstretched and motionless wings. He passes within a few yards of me and swings towards a shelf crowded with birds brooding their downy, black-faced young. Alighting on the edge he elbows his way along the ledge, notwithstanding the angry looks, the black mouths suddenly opened and the vicious pecks of his neighbors. All of these he returns in kind. Arrived at his nest he is enthusiastically greeted by his mate, who, disregarding the young bird beneath her, rises up to do her part in the dance. The birds stand face to face, the wings slightly raised and opened, the tails elevated and spread. They bow towards each other, then raise their heads and wave their bills as if they were whetting these powerful instruments, or as if they were performing the polite preliminaries of a fencing bout. From time to time this process is interrupted as they bow to each other, and appear to caress each other as each dips its pale blue bill and cream-colored head first to one side and then to the other of its mate's snowy breast. With unbated enthusiasm and ardor the various actions of this curious and loving dance are repeated again and again and often continue for several minutes. After the dance the pair preen themselves and each other, or the one first at the nest flies away and the new arrival waddles around so as to get back of the nestling, and the strange process of feeding takes place.

This dance is not only performed by pairs as just described, but not infrequently individuals perform a *pas seul*, it may be because he or she is wearied with waiting for its mate. The wings are slightly raised and opened, the tail elevated and spread, the bill pointed vertically upwards and waved aloft, then dipped to one side under the half open wing and then to the other, the bill raised and waved again and so on over and over again. Owing to the great volume of sound from the ledges it is impossible to distinguish any individual performer, and I was unable to tell at what point in the dance and to what extent the song was important. The sound is like that of a thousand rattling looms in a great factory, a rough, vibrating, pulsing sound—*car-ra, car-ra, car-ra.*

The movements in the air that may or may not be accompanied with song may be classed in this division of the dance. The Bobolink, rising in irregular circles, or progressing in a horizontal plane on rapidly vibrated down-curved wings, is expressing his amorous feelings by dance as well as by song. His flight often concludes by a rapid descent with wings pointing obliquely upward, forming a display by posture and motion—in themselves forms a dance. The ardor of courtship bears many a bird aloft, and he expresses his feelings with his wings as well as with his voice. One may name not only the Oven-bird and the Maryland Yellow-throat, the Bobolink and the Orchard Oriole, the Semipalmated Sandpiper and the Upland Plover, the Horned Lark and the Pipit, but many other birds in this category, some of which, like the Song Sparrow, sing chiefly from a perch. The Horned Lark mounts silently to a great height and pours forth his song in long periods, sometimes out of sight in the low-lying clouds. The Pipit sings as he ascends nearly vertically and, arrived at the summit of his ambitions, descends quickly, still singing, to the earth.

All birds who indulge in flight song are apt to quiver their wings rapidly in their ecstacy. Sometimes this motion of wings becomes of primary importance and the bird flies with quivering wings but voiceless, or even vibrates his wings rapidly from a perch. This sometimes happens in birds that ordinarily sing at the same time. I have seen it, for example, in the Song Sparrow. The Pheasant quivers his wings rapidly but nearly noiselessly, then emits his vocal crow to be followed by a loud clapping of the wings. The Ptarmigan vibrates his wings rapidly in flight and calls at the same time; the Spruce Partridge flies from a tree stub to the ground with audibly vibrating wings, while the Ruffed Grouse stands on a log and, by the rapid whirring of his wings, emits his characteristic 'drumming.' That this drumming is evolved from a flight song and that there was once a vocal part of the performance, I have little doubt. These examples show the stages in the evolution.

The loud clapping together of the wings behind the back in Domestic Pigeons during flight and their habit of soaring with wings obliquely upwards, although common at all times, are

most marked in the courtship season and are probably of courtship origin. The V-shaped pose of the tail-feathers of the Bronzed Grackle is probably of the same nature for it is discarded in midsummer.

Both the Savannah and the Vesper Sparrow stand or walk on the ground and elevate and sometimes vibrate their wings rapidly above their backs. They also fly slowly a short distance above the ground with head and tail up and wings rapidly fluttering and deliver their song.

The rapid headlong plunges of the Nighthawk may be classed as a display of motion, a form of the dance. Incidentally, and perhaps accidentally at first, a loud booming sound is produced by the rush of air through the wing feathers. This instrumental music is now the important feature, although the dance is by no means a negligible one. The Raven turns a rolling-over somersault in the air, and the Marsh Hawk plunges from a great height, loops the loop or turns a sidewise somersault. The Chat with dangling legs dances crazily about in the air, and the Kingbird executes a series of zig-zag and erratic flights, emitting at the same time a harsh double scream. This is a true courtship flight song but it is neither graceful to our eyes or pleasing to our ears. The taste of the Kingbird in these matters appears to us to be poor.

The impossibility of treating in turn only one of the primary divisions—display, dance and song—is well shown by these examples. The case of the courtship of the Heath Hen is still more difficult for all three factors are inextricably mingled. I have already alluded to the display of the neck-sacks of this bird, orange in color and shape, a very striking and beautiful feature, but secondary or incidental to the production of 'song' to be described later. The erection of the neck-wings which ordinarily help cover the deflated neck-sacks, the spreading and erection of the tail, the vibration of the down-stretched wings, the pirouetting and turning of the body and the rapid stamping of the feet in this species are all forms of the dance.

Lastly, in this brief review and rough classification of the courtship actions of birds, the song is to be considered. By song I do not mean necessarily a melody or musical strain pleasing to human ears—although many of these produced by the higher species of

birds are extremely pleasing—but any sound which is customarily connected with courtship. Courtship song, as thus understood, may be either vocal or instrumental. The rattling of the stiff tail feathers of the Peacock and the rolling drum made by the wings of the Ruffed Grouse fall into the instrumental category. The rapid stamping of the feet by the Heath Hen produces a ratta-tat-tat like that made on a kettle drum. The tooting sound, similar to that made by blowing across the top of a bottle, produced by the neck-sacks of this same bird, should, I suppose, be classed as instrumental song. The sounds made by the clapping together behind the back of the wings of the Domestic Pigeon, of the clapping on the sides of the Pheasant are, of course, in the instrumental class.

The Woodcock in his wonderful courtship flight, as he ascends straight up in the dim light of early morning or late evening, gives forth loud sounds that cease whenever the bird sets his wings and momentarily soars—instrumental sounds made apparently by his wings. During the last part of the ascent and during the descent he gives forth sweeter vocal notes or whistles. Before he is again on the wing he emits at intervals loud vocal *peents*, preceded by faint gulping sounds accompanied by a puffing out of the body and slight raising of the wings.

The Wilson Snipe flies about in his ecstatic courtship when the light is so poor that it is difficult to observe his flight, and sounds arise—quavering or bleating in character—which are believed to be instrumental in their nature, due to the passage of the air through his stiff primary feathers. The loud booming or whirring sound made by the Nighthawk in his spectacular plunges has already been mentioned, an instrumental music of curious character.

The drumming of the Flicker on a hollow stub or on a roof or chimney-pot is clearly to be classed as instrumental music. I have heard this bird interrupt his spring song to drum and later continue with his vocal music.

The song of courtship produced by the vocal organs of the bird varies from the rasping, vibrating note of the Golden-eye or the *aa-ou* of the Eider, emitted at the height of the dance and display, the harsh scream of the Kingbird or the *tis-ik* of the

Henslow' Sparrow to the clear, plantive, whistle of the White-throated Sparrow, and the serene, spiritual hymn of the Hermit Thrush. While the simpler, more primitive songs are given forth only during courtship excitement, it is evident that many, especially the more complicated and aesthetic ones, although at their best and sometimes elaborated or extended under courtship excitement, are often continued and repeated for the mere enjoyment of the performer in his own music. The autumnal recrudescence of the amatory instinct, often displayed in song, is well known.

The subject of bird song is one apart by itself, and I have alluded to it in this brief manner merely to round out the classification, made in the beginning of this paper, of *display, dance* and *song*—the important features of bird courtship.

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OBSERVATIONS ON THE HABITS OF BIRDS AT LAKE BURFORD, NEW MEXICO.

BY ALEXANDER WETMORE.

(*Concluded from p. 247.*)

19. **Botaurus lentiginosus** (Montagu). AMERICAN BITTERN.—One was heard pumping in the rushes several times on the morning of May 29. Another was found at the first of the small lakes in the canyon below on June 11. It was pumping also so that it is possible the Bittern breeds here.

20. **Ardea herodias** Linnaeus. GREAT BLUE HERON.—Present during migration. Three were seen on May 29, and one on May 30 and June 3.

21. **Egretta candidissima candidissima** (Gmelin). SNOWY HERON. Found at Lake Burford during migration. One was seen at the crossing of the Brazos River below Park View, N. M., on May 23, and another was observed at Lake Burford that evening. Two were noted at the lake on May 26, and another was seen on the morning of June 5. One flew past the cabin several times on the evening of that day and finally alighted in the rushes nearby where it was collected. It was an adult

female in full plumage, with the ova showing some development. It seems probable that these birds were on their way to the mouth of Bear River at the northern end of Great Salt Lake, Utah, as that is the only interior breeding colony in the region. These late migrants would reach there in time to form the breeding units that came in to the colonies as late as the middle of June.

22. **Nycticorax nycticorax naevius** (Boddaert). BLACK-CROWNED NIGHT HERON.—Fifteen pairs of these Herons were found at Lake Burford and at the time of my departure were preparing to breed in the rushes at the upper end of the Laguna de la Puerta. It is possible that there may have been another colony established later at the main lake. A few were present when I first arrived at Lake Burford, but they did not become common until May 29. Birds were flushed from the rushes during my work along the lake shore or were seen occasionally, five or six together, enjoying the sun on open beaches. In evening they flew back and forth in front of the cabin to convenient points from which to watch for the water-dogs (*Ambystoma*) that with frogs formed the only food-supply available here. On one occasion while I was sitting in a blind in the rushes a Night Heron flew by and spying a dead Axolotl floating in the lake alighted on the water (where it was six feet deep) to seize the water-dog in its bill. After resting thus for a minute the bird rose easily from the surface and flew off with its prey. It was somewhat of a surprise to find the Night Herons acting as scavengers, but they kept the dead Axolotls well cleaned up until the last part of my stay, for though I saw many floating on the surface of the water, comparatively few were found at any time washed up along the shore.

The birds often were found during the day time watching for water-dogs in the shadow of rocky points. Until the first of June I thought that at times they were rather hard-pressed for food for, as the water was cold, the *Ambystoma* seemed still inactive, and dead ones had not appeared on the surface in any numbers.

Night Herons in second year plumage were seen at intervals.

23. **Rallus virginianus** Linnaeus. VIRGINIA RAIL.—One was heard calling on May 25 and one was flushed in a narrow band of tules on the lake shore on May 27. Others were heard calling on June 7, 10, 11 and 12, so that it is possible that one pair at least nested here.

24. **Fulica americana** Gmelin. AMERICAN COOT.—Next to the Eared Grebe and Yellow-headed Blackbird the Coot was the most abundant breeding species here and it was estimated that 150 pairs in all were nesting at the lake. Many were in pairs on the date of my arrival, but until June 5 small flocks of unmated birds remained feeding in the open bays or rested in little bands on open beaches. Toward the latter part of this period these flocks at short intervals presented a scene of great animation as the birds displayed and fought savagely with one another. A little later on the companies broke up entirely. Each male selected an

area of shoreline in the tules and remained near this constantly, guarding it jealously, taking frequent occasion to drive away ducks and Eared Grebes who might chance to trespass, and having many fights with neighboring males. In these encounters they drove at each other with heads extended on the water and the wing-tips elevated. When near they began striking viciously with their bills and then, lying back, struck heavily first with one large foot and then the other, a most effective means of fighting as their claws were long and sharp, and their leg muscles powerful. Each tried to guard against these blows by seizing the feet of his antagonist so that often the two held each other by means of their feet, while they thrust savagely with their bills. The females frequently took part in these squabbles also, so that sometimes three or four birds were engaged at one time, while neighboring males came rushing up also seeming minded to interfere. When they separated the males sometimes rested for several minutes with heads down on the water and wing-tips raised, eyeing each other like two game cocks.

Their mating actions were interesting. Males frequently rushed after females, paddling over the surface of the water with flapping wings, while the females made off in the same manner, ten feet or so ahead. Frequently the females made merely a pretense at escape, striking out with their feet and making a great splashing but traveling slowly, but if too closely pressed they dove leaving the males looking about for them on the surface. In the most common act of display the male came paddling out with head and neck prostrate on the water, wing tips raised high above the tail, and the tail spread and elevated so that the white markings on either side were very prominent. As he came near the female usually assumed the same attitude. When two or three feet away the male turned and presented the prominently marked tail to the female, swimming off slowly and then returning to repeat the performance. This action was seen constantly whenever coots were under observation. Paired birds often swam toward one another from a distance of several feet with heads extended on the water calling *kek kek kek kek*. As they met they assumed a more erect attitude and then as they brushed against one another and turned about they dabbled in the water with quick jerks of the open bill that threw drops of water from side to side. Frequently the female reached over and worked her bill gently through the feathers on the male's head and then lowered her head while he preened her feathers in return.

A nest foundation was found on May 29 and on June 3 one bird was observed resting in a completed nest. By June 7 nests were common and by June 12 nests newly begun or containing sets of eggs were to be found in every projecting point of tules. In building the female arranged the dead stems of the round-stalked *Scirpus occidentalis* to form a platform, bending them over and striking them repeatedly with her bill to make them stay in position, causing a peculiar knocking, hammering noise that at this season was to be heard in the rushes on all sides. Frequently

the first one or two eggs of a set were laid on a mere platform and the completed nest built up later, depending perhaps upon the need of the female for a place to deposit her eggs. A complete set of seven eggs with incubation begun was seen on June 7 and after this sets were common. The males seemed to take no part in nest building, but stood about in the rushes a few feet away. This guard continued as the eggs were laid and incubation began. When the females were on the nest it was amusing, as I approached slowly in the boat, to see the males stalk truculently down and slide into the water, eyeing me closely all the while. Frequently at this season they rose on the surface of the water, treading heavily for a few strokes, making a loud turmoil in the water and driving themselves backward for a foot or more with the force of the effort, apparently a threatening act intended to frighten away an intruder.

Many of the nests were mere floating platforms anchored among the tule stems in two or three feet of water so that I was able to pass a boat paddle beneath them without meeting with any obstruction. Some were built in exposed situations where they were visible on all sides, so that the birds evidently have no fear of enemies approaching from the water. Incubating females frequently sat closely, allowing me to pass within a short distance, but took care to turn their heads so as to conceal the prominent white bill. One nest examined in an isolated clump of tules was composed entirely of green stems but this was unusual, as it was customary to utilize dried stalks only, even when it was necessary to carry them from a distance of several yards.

One bird was seen eating algae and slime that had collected on dead tule stems floating in the water. It fed eagerly on this material, seizing and stripping one piece after another.

25. **Steganopus tricolor** Vieillot. WILSON'S PHALAROPE.—This species was present here in migration. On May 24 about twenty, most of them males, were feeding on the open water in two small flocks. On May 27 a dozen were found on a mud bar in the upper end of Hayden's Lake. On June 8 two males and a female were found on one of the islands in the lower lake and it seemed as though they might be ready to breed here as the locality was a favorable one. They disappeared at once however, and, though a pair was seen in another locality on June 14, this Phalarope did not nest here this season.

26. **Himantopus mexicanus** (Müller). BLACK-NECKED STILT. Four were found in an open area on the north shore on May 30. They passed on at once.

27. **Catoptrophorus semipalmatus inornatus** (Brewster). WESTERN WILLET.—One was seen on May 27.

28. **Actitis macularia** (Linnaeus). SPOTTED SANDPIPER. The Spotted Sandpiper was found during the spring migration but none nested at Lake Burford, though they bred only ten or twelve miles away, along the Brazos River. Two were observed on May 24, while on the following day

there was a considerable influx of migrants so that about twenty-five were seen. The species was fairly common until May 28 and then decreased in numbers. Single birds were seen on June 1, 3 and 5. On June 18 an adult appeared, probably a bird come from the breeding grounds nearby, the forerunner of the summer migrants.

29. **Oxyechus vociferus** (Linnaeus). KILLDEER.—One pair of Killdeer nested on the western shore of Lake Burford and another pair bred at the Laguna de la Puerta.

30. **Meleagris gallopavo merriami** Nelson. MERRIAM'S TURKEY.—Old Turkey sign was seen in a gulch east of the lake on May 26 and the birds were reported as fairly common farther south.

31. **Zenaidura macroura marginella** (Woodhouse). WESTERN MOURNING DOVE.—The Western Mourning Dove was an abundant breeding species in the forested hills surrounding Lake Burford and often was seen along the rocky shores or in the sage brush. Pairs came down to water on the open beaches, or occasionally flew out and alighted upon floating masses of dead tules and walked down the edge to drink. Males were heard cooing and were seen in the short sailing flights, made with stiffly spread wings that are characteristic of the breeding season. In the early morning many came down on the floor of the open canyon below the lake and sometimes two or three hundred were gathered in a small space. They seemed to prefer the shaded side of the canyon, even though the mornings were crisp and cool. The birds were very nervous here, frequently flushing and flying for short distances perhaps through fear of predatory hawks. Later on in the day they rested in Pinyons or cedars or fed on the ground in the shadow of these trees.

One was found that had been killed by a Sharp-shinned Hawk.

32. **Cathartes aura septentrionalis** Wied. TURKEY VULTURE.—The Turkey Vulture was fairly common about Lake Burford and individuals often were seen soaring above the hills or about the broad sandstone ledges in the canyon below

On June 15 six pairs of these huge birds were seen walking about on a rocky beach where apparently they were looking for dead axolotls that often were washed up here by the waves. I drifted up in the boat until I was within thirty yards of one pair, and others showed little fear even when I landed and walked about. Two walked solemnly down to the water's edge and drank, dipping in the water and then raising the head (but not throwing the bill up) in order to swallow. They clambered over the piles of Potamogeton and algae cast up last year and left on the shore, pecking at it experimentally, pulling off the surface and digging into the interior with their bills as they would into carrion. One, suddenly feeling the warm sun extended its wings and spread its tail, remaining thus for several minutes. On the following day a pair came to search for bird bodies and other refuse at the cabin. It is probable that food was scarce at this time as bands of sheep that had been grazing here had all been moved

farther south into the mountains so that carrion from this source was no longer available.

33. **Circus hudsonius** (Linnaeus). MARSH HAWK.—On May 29, a female was observed high over the lake and one was seen four miles above El Vado on May 31. An adult female was noted at the lake again on June 14. Apparently this species did not nest here.

34. **Accipiter velox** (Wilson). SHARP-SHINNED HAWK.—This hawk nested in small numbers in the pine-grown hills around the lake. A male was seen playing in the air with a Cooper's Hawk on May 26. On May 27 one came darting through the sagebrush near the cabin and on June 2 one was seen in the gulch east of the lake. On the evening of June 6, attracted by an uproar among the Yellow-headed Blackbirds, I found a sharp-shin in the sagebrush just above the lake and shot it. This bird was a breeding female and had both right and left ovaries present and about equally developed, a common peculiarity among hawks of this group. The right ovary had produced two mature ova as was shown by the ruptured follicles and had another partly developed. The left ovary had already produced one egg and had another ovum greatly enlarged. The left oviduct only was developed.

35. **Accipiter cooperi** (Bonaparte). COOPER'S HAWK.—One was observed on a forested hill east of the lake on May 26.

36. **Buteo borealis calurus** Cassin. WESTERN RED-TAIL.—One or two pairs nested in the rocky hills bordering the canyon below the lake. Individuals were seen at short intervals from May 26 to June 14.

37. **Aquila chrysaetos** (Linnaeus). GOLDEN EAGLE.—Single birds were seen three miles above El Vado on May 31 and June 12, and on the latter date a pair of these eagles was observed near the Laguna de la Puerta. Apparently they nest in the rock ledges bordering the canyon below the lake. Limb bones of a Golden Eagle were picked up near the East Bay.

38. **Falco mexicanus** Schlegel. PRAIRIE FALCON.—A pair of these falcons had a nest containing young on an inaccessible ledge high up on the sandstone cliffs bordering the canyon below the lake. The adults frequently came across to hunt along the lake shore and harried the Yellow-headed Blackbirds so mercilessly that these set up an outcry whenever a bird of any size appeared on the skyline. Near the nest these falcons frequently perched in dead trees as well as on the rock ledges. The nest was easily located by watching and following the adults but was on a rock shelf where it could not be reached without ropes.

39. **Falco peregrinus anatum** Bonaparte. DUCK HAWK.—A pair of these swift-flying falcons had a nest in the canyon south of the lake and the adults were observed hunting at the lake and in the open country around it. The young left the nest about June 10 and were heard calling from rocky points nearby for a day or two afterward. One was shot from the boat on June 15 but was lost as it fell in a great expanse covered with sagebrush above a shale bluff.

40. **Falco sparverius phalaena** (Lesson). DESERT SPARROW-HAWK. The sparrowhawk was fairly common about Lake Burford and one or two were seen daily. One fed much of the time on a small flat below the cabin where it seemed to be catching the abundant grasshoppers. Often it perched on anthills or clumps of dead rushes in default of other resting places. On June 10 one was seen pursuing a magpie through a grove of cedars, striking at it repeatedly. These little falcons delight in playing with other hawks and were seen darting down at Redtails and Cooper's Hawks as they circled about in the air.

41. **Bubo virginianus occidentalis** Stone. WESTERN HORNED OWL. Horned Owls were fairly common in the timbered gulches above Lake Burford. On two occasions birds were heard hooting during the early forenoon and June 15 several were heard calling in the evening. On June 16 one was seen in a gulch east of the lake, and a large nest in the top of a Yellow Pine nearby may have belonged to this bird. That evening at dusk as I sat in the grove of Cottonwoods above the cabin a Great-horn came flying down from the hills above and alighted in the top of a tall dead tree over my head. It eyed me closely when I squeaked, but soon lost interest and continued looking around. Once it scratched the side of its head violently with one foot. After watching it a few minutes I shot it and found that it was a female bird of large size. The wing measured 405 millimeters, and the specimen appears to be typical of the form *B. v. occidentalis*.

42. **Dryobates villosus** (Linnaeus). HAIRY WOODPECKER.—Hairy Woodpeckers were fairly common and were nesting in the forested hills around Lake Burford. A male was seen drumming on a dead pine on June 2 and a female was found near the same place on June 9. One was observed in pines below the lake on June 11 and another came into the grove of cottonwoods above the spring on June 17. None were taken.

43. **Sphyrapicus thyroideus** (Cassin). WILLIAMSON'S SAPSUCKER. Fairly common among Yellow Pines on the hills above Lake Burford. On June 2 I found a pair of these birds east of the lake. The female was working steadily at a new row of drill holes in the bark of a Yellow Pine, where the area covered by old pits was already a foot square. This pair had a nesting hole driven in the trunk of a dead Yellow Pine about 50 feet from the ground, and the male remained on guard near it to prevent House Wrens and Violet-green Swallows that were busy about other cavities in the same tree from usurping it. He made little demonstration save to fly down to the hole and look in when one of the other birds came near it, but this was sufficient as they remained at a safe distance. After each inspection he sidled around on the other side of the trunk from me. The call note of this sapsucker is a low rattling *keh-h-h* given in a somewhat guttural tone. It resembles the call note of *S. varius* in a general way but is given in a stronger, more decided manner, and is louder. On June 16 a female in another location was working at a new row of pits in a large limb of a Yellow Pine.

44. **Colaptes cafer collaris** Vigors. RED-SHAFTED FLICKER. Flickers were fairly common in this area. One pair nested in a dead cottonwood near the spring hole above the cabin and others were breeding nearby. These birds spent much time in feeding on the ground in the sage brush. Ants were very abundant here so that food was easily secured.

45. **Chordeiles virginianus henryi** Cassin. WESTERN NIGHTHAWK. The first nighthawk, a female, arrived at Lake Burford on June 2. A male was heard calling and booming on June 6 and the birds were fairly common until June 16. On the following day there was a great increase in their numbers and evidently the bulk of the breeding birds arrived at this time. These birds frequented the rocky ridges covered with open forest above the lake, but came down over the flats to feed. On the evening of June 17 a number of pairs were seen and males were calling and booming excitedly. Locally it is believed that the male has a hole in either wing that he opens in producing the loud whirring boom, as he dashes down through the air.

46. **Aeronautes melanoleucus** (Baird). WHITE-THROATED SWIFT. The high cliffs of light-colored sandstone in the canyons near Lake Burford furnished suitable nesting sites for these swifts and the birds were fairly common about the ledges. From May 30 until June 4 flocks of them seemed to be in migration and were seen circling high in the air or feeding over the flats. Near the cabin they joined bands of Violet-green Swallows that were coursing back and forth above the sage brush, feeding on the swarms of chironomids driven in here by the wind. A few were collected here but it was difficult to pick them out from the innumerable swallows and shoot before they had darted away out of range. The call note of this bird is a shrill laughing *he he he he* heard usually when two or three are coursing along together.

47. **Selasphorus platycercus** (Swainson). BROAD-TAILED HUMMINGBIRD.—This hummingbird was fairly common about Lake Burford and was seen daily among the pines and pinyons or crossing the flats.

48. **Tyrannus vociferans** Swainson. CASSIN'S KINGBIRD.—This Kingbird was first observed on May 25 and from then on it was fairly common. They frequented rocky hillsides where scattered Yellow Pines rising above the low undergrowth made convenient perches from which to watch for insects and look out over the valleys. The birds nested here in small numbers and males were seen at intervals in crazy zigzag sky dances made to the accompaniment of harsh calls and odd notes, similar to those of none of our other birds. Toward dusk they called constantly their harsh, stirring notes making a pleasing sound that mingled with the songs of House and Rock Wrens, the scolding of an occasional Mockingbird and the cheerful calls of the Robins.

49. **Myiarchus cinerascens cinerascens** (Lawrence). ASH-THROATED FLYCATCHER.—One was found among cedars on a sage-covered hillside on the afternoon of May 26.

50. **Sayornis sayus** (Bonaparte). SAY'S PHOEBE.—Say's Phoebe was fairly common on the open flats below Lake Burford, and was heard calling plaintively in the evenings. Occasionally they were seen hovering over open flats in much the same manner as the Mountain Bluebird. The call note is a whistled *phee-ur*. A nest found on June 9 in a deep, narrow arroyo was placed on a narrow shelf three feet above the bottom, where the overhanging bank concealed it from view. This nest was composed of a few bits of weed stems and rootlets, bound together with spider webbing, and was felted firmly with a mass of sheep's wool gathered from the surrounding sagebrush. The interior was made almost entirely of wool, and was very soft and resilient. It contained four pure white eggs.

51. **Myiochanes richardsoni richardsoni** (Swainson). WESTERN WOOD PEWEE.—The Wood Pewee was fairly common among the Yellow Pines on the hills above Lake Burford.

52. **Empidonax wrighti** Baird. WRIGHT'S FLYCATCHER.—This small flycatcher was common among junipers and pines in the dry hills back of Lake Burford. It was first seen on May 25, but was probably present on my arrival. These birds were found over the dry hillsides above the gulches, perching near the ground, or, at times, mounting thirty or forty feet in the Yellow Pines. Sometimes they hopped restlessly from one perch to another, trying several in succession before being satisfied. The birds were often shy and difficult to approach. The ordinary call note was a loud *tsee-wick*, given almost as one syllable, that when heard near at hand was startlingly like the *chebec* of the Least flycatcher. At a distance however this resemblance was lost. The males had a peculiar jerky song divided into couplets with slight pauses between that may be represented by the syllables *see-wick, tsee-ee, se-wick, tsil-ly tsee-ee*.

53. **Pica pica hudsonia** (Sabine). MAGPIE.—One or two pairs of Magpies nested near the eastern shore of Lake Burford. The birds were seen almost daily and one or two old nests were observed.

54. **Cyanocitta stelleri diademata** (Bonaparte). LONG-CRESTED JAY.—This Jay was common among the Yellow Pines on the hills above Lake Burford. Well grown young out of the nest were observed on June 16.

55. **Perisoreus canadensis capitalis** Ridgway. ROCKY MOUNTAIN JAY.—One was seen on a high hill east of the lake on June 16.

56. **Corvus corax sinuatus** (Wagler). AMERICAN RAVEN.—Common around Lake Burford and nesting along the cliffs in the canyon below the lake. Ravens came over daily to feed along the lakeshore and in the sage-brush above it. On May 28 one alighted near the cabin and picked up and ate several white-footed mice that I had trapped in the cabin and thrown out near the door.

57. **Corvus brachyrhynchos hesperis** Ridgway. WESTERN CROW. Several pairs nested about the lake and came down daily to the shore.

Here they walked about in the open hunting for beetles, or flew along low over the rushes searching for the nests of blackbirds. The male Yellowheads and Redwings flew up and attacked them savagely but the crows paid them little attention.

58. **Cyanocephalus cyanocephalus** (Wied). PINYON JAY.—The Pinyon Jay was common among the Pines and Cedars on the hills around the lake. During May and the first part of June little parties of half a dozen or more were observed at intervals flying in the open or working through the pinyons. On June 14 a flock of about 100 appeared and fed among the sage-grown knolls until the time of my departure. On the ground these jays walked quickly, holding themselves upright with heads very high. This attitude, with the short tail and general build gave them a striking resemblance to Starlings though the neck appeared longer than in that species. When startled the whole flock flew off by easy stages through the cedars giving their pleasant, curiously modulated call notes. A considerable number of these birds were young of the year, and some of these, though well grown, were still being fed by their parents. In color these young birds appeared distinctly grayer, less blue, than the adults, and their call note was a persistent *quay-quay, quay-quay* that at once attracted attention.

59. **Molothrus ater** (Boddaert). COWBIRD.—The Cowbird was not observed at Lake Burford until May 30, when a female appeared near the cabin. On the following day a male was seen. This second bird took up his residence at the cabin and, becoming very tame, remained within a few yards of it constantly until my departure. When not feeding on the ground nearby he was usually to be found in the top of a low bush near the cabin door. The performance in singing was as follows: the bird would rest quietly for a few seconds, then expand the tail and draw the tip slightly forward, erect the feathers of the back and to a less extent those of breast and abdomen, and then sing *bub ko lum tsee*. In giving the first three notes he rose twice to the full extent of his legs and sank back quickly. After singing the bird relaxed and sat quietly for a short time. At noon on June 1, while watching this bird, I heard a low call like *tsee tsee*, to which the bird under observation responded. At once a second male came flying in, and, suddenly checking when two or three feet from the bush, extended the bill straight up and in this attitude came down slowly to a perch three feet from the first bird. This one at once assumed the same attitude, and the two remained thus for two or three minutes with bills pointing straight in the air, twisting their heads around but seeming never to look directly at one another. Finally first one and then the other lowered his bill and glanced at his neighbor but immediately stiffened up again in the erect attitude. The newcomer gradually relaxed, finally sinking down and fluffing out his feathers to remain almost asleep. The original male then began to sing, opening his wings wide and then closing them again in addition to his other motions, and at times nearly overbalancing in the violence of his display.

The original male was mated on June 2 and the pair of Cowbirds remained constantly nearby for ten days or more. On June 5 and 6 a second female appeared and fed with the others. The male was seen running at them with his bill pointing straight in the air and then pausing to sing and display. The second female disappeared at once while the pair remained together until June 13. After this the male was seen alone. He continued to sing during the remaining time that I was there but ceased displaying almost entirely. If observations made here are a proper criterion the breeding season for the Cowbird is very short.

60. **Xanthocephalus xanthocephalus** (Bonaparte). YELLOW-HEADED BLACKBIRD.—Next to the Eared Grebe the Yellow-headed Blackbird was the most abundant breeding bird at Lake Burford and the small lakes nearby. It was estimated that in all 210 pairs were nesting here. The adult males were settled in large part on their breeding grounds on my arrival, though many of them were not yet mated. Each selected a stand in the tules at the border of the lake, and, unless away feeding, was certain to be found in the immediate vicinity constantly from that time on. The birds were always tame but certain individuals whose domain I passed almost daily on foot or in a boat soon became fearless and I was able to recognize and look for these in certain spots constantly. At this season the male seems fully conscious of his handsome coloring and in his displays makes every effort to attract attention. In the most common display the male started towards the female from a distance of 30 or 40 feet with a loud rattling of his wings as a preliminary. The head was bent down, the feet lowered and the tail dropped while he flew slowly toward his mate. The wings were brought down with a slow swinging motion and were not closed at all so that the white markings on the coverts were fully displayed, the whole performance being reminiscent of a similar wing display of the Mocking-bird. In flying from one perch to another males often dangled their feet, frequently breaking through small clumps of dead tules with considerable racket. Or they clambered stiffly along, hobbling over masses of bent-over rushes, with heads bent down, tails drooping and back humped, appearing like veritable clowns.

The song of these Yellowheads was subject to much variation, but ordinarily resembled the syllables *Klee Klee Klee Ko-Kow-w-w*, the last low and much drawn out. Their colonies were always noisy, and strange cat-calls, drawn out wailing notes, and chattering protests came to my ears constantly from birds in the rushes below camp as I worked on notes or specimens. The ordinary call note of the males was a liquid *cluck*, somewhat unlike the call of any other blackbird, while the call of the female was more Redwing-like.

Some of the birds had nests on my arrival and by May 28 nest-building was going on everywhere. This task was performed entirely by the females who worked at it nervously and energetically, using wet or damp materials and molding them rapidly into shape. One brood of young had left the

nest, and another nest contained young from two to five days old, on June 14. Most of the birds, however, still had eggs at the time of my departure. The nests examined were all suspended in growing clumps of green tules (*Scirpus occidentalis*) over water from one to three feet deep, and were in danger of being overturned by the unequal rate of growth of the stems which frequently thrust one side of the nest high above the other. The adults seemed to take no steps to alter this condition beyond constructing their baskets with deep cup-shaped hollows to hold the eggs in if possible.

In feeding the Yellowheads gathered in little flocks containing both males and females, and flew back into the sagebrush where thousands of Chironomids blown in to shelter by the wind were gathered. The birds walked quickly along on the ground or clambered over the bushes, picking up the luckless insects and moving along quite rapidly. Sometimes these feeding flocks penetrated a mile or so inland but more often they were found near the lakeshore. Should a hawk appear, as frequently happened, males in the marsh below rose in the air with shrill chattering calls, giving the alarm to their feeding companions. These immediately rose and flew swiftly, low over the slopes, down to the shelter of the rushes. On calm still evenings when the gnats were emerging in numbers from the lake and were flying in toward land the Yellowheads remained in the rushes, and rising at short intervals captured the insects in the air as they passed. During the day flocks of the birds were continually passing up and down the slopes on their way to or from their feeding grounds.

The feet of the Yellow-head are relatively very large with long, strong toes and the birds use them to advantage in walking about on floating aquatic vegetation or soft mud. In the rushes they prove themselves expert gymnasts. Often they alighted near the tips of the tall round-stemmed tules and as these swayed under their weight the birds supported themselves by their wings while they slid their feet quickly down to a new hold, trying several grips until finally they were low enough so that the rush supported them. This was done with great quickness as the birds shifted from grip to grip rapidly. At times instead of sliding down they reached out and grasped a second stem with one foot, dividing their weight between the two and standing suspended with the feet five inches or so apart.

61. **Agelaius phoeniceus neutralis** Ridgway. SAN DIEGO REDWING. —The Redwing was abundant at Lake Burford and it was estimated that 20 pairs were nesting here, scattered along the shore of the lake among the abundant Yellowheads. A nest found near the cabin on June 14 contained four eggs. This nest was placed in a mass of dead tules of last year's growth where it had a secure foundation. Later it was robbed by crows. One male near the cabin in evening often slowly ran along the ground with wings partly spread and half-raised and epaulets showing to their fullest extent, a very pretty display.

62. **Sturnella neglecta** Audubon. WESTERN MEADOWLARK.—Meadowlarks were fairly common in open localities about the shores of the lake. On June 11 a nest containing four eggs and two newly-hatched young was found below the cabin at the edge of the marsh, placed in a last year's growth of Foxtail and Salt grass. As several bands of sheep had been trailed through here it was only by chance that this nest survived. Another young bird hatched on June 12 and a fourth one on the following day. The other two eggs may have been infertile as they had not hatched on June 19 when I left the region. The adult meadowlarks savagely attacked Redwings and Yellowheads that chanced to approach the nest site and permitted no intruders whatever.

63. **Euphagus cyanocephalus** (Wagler). BREWER'S BLACKBIRD.—A pair nested near a hayfield below the Laguna de la Puerta, where they were observed on May 31 and June 12 and 19. None were found nearer the large lake.

64. **Carpodacus cassini** Baird. CASSIN'S FINCH.—A male was seen among Yellow Pines on a high hill east of Lake Burford on June 9. It was perched in the top of a very tall pine and was singing. The song in general was like that of the Purple Finch but was given more rapidly and emphatically.

65. **Carpodacus mexicanus frontalis** (Say). HOUSE FINCH.—A House Finch was observed near the eastern shore of Lake Burford on June 16.

66. **Spinus pinus** (Wilson). PINE SISKIN.—Pine Siskins were seen in the hills above the lake on May 26 and 28 and on June 16.

67. **Pooecetes gramineus confinis** Baird. WESTERN VESPER SPARROW.—The Vesper Sparrow was common through the sage brush on the flats and knolls surrounding the lake and males sang constantly around the cabin. On June 6 a female flushed from a nest near the western shore of the lake, ran away along the ground through the bushes with her wings extended and held stiffly above her back. The nest was placed in a small hollow at the foot of a partly dead sage where the trunk arched out over it, protecting and partly concealing it, a needed shield from the trampling feet of sheep that were grazed here. The nest was a large, well-formed cup of dried grasses, lined with finer material of the same nature. It contained two young apparently five or six days old, partly covered with grayish white down.

68. **Passerculus sandwichensis alaudinus** Bonaparte. WESTERN SAVANNAH SPARROW.—Savannah Sparrows were found in small numbers in dead weatherbeaten growths of Bayonet Grass near the open shores on the northern and southern sides of the lake. Apparently they bred, as birds were noted here on May 28 and 30 and June 6, but no nests were found. On June 6 a male was singing.

69. **Chondestes grammacus strigatus** Swainson. WESTERN LARK SPARROW.—Fairly common in the country near El Vado. At Lake Burford one pair nested on an open flat above the grove of large cottonwoods.

70. **Zonotrichia leucophrys** (J. R. Forster). WHITE-CROWNED SPARROW.—These sparrows appeared in migration in the bushes near the lake on May 28 and remained until June 4. During this period they were fairly common in growths of *Amelanchier* and *Ribes* and were also found in the sagebrush.

71. **Spizella passerina arizonae** Coues. WESTERN CHIPPING SPARROW.—The Chipping Sparrow was fairly common in junipers near the lake shore and was found also among the pines covering the hills back from the lake.

72. **Spizella breweri** Cassin. BREWER'S SPARROW.—The Brewer's Sparrow was one of the most common breeding birds in the extensive sage grown areas surrounding the lake. The birds were seen constantly and males sang daily about the camp. A nest found June 4, placed in a fork in a sage 14 inches from the ground, was a small compact cup of grasses and weedstems, firmly woven externally, and lined with horsehair and bits of fine grass. The three eggs were clear pale green in color, spotted with brown. On June 12 a nest containing two newly hatched young was seen, and the following day another containing three eggs was found. A nest examined June 15 contained four eggs that were apparently fresh, two found June 16 contained two and three eggs respectively, and one seen June 17 contained 3 newly hatched young. All were similar in form and location to the one first described.

The birds themselves were quiet and unobtrusive merely flying up to lookout points on the tips of sage or hiding in the thick growth when disturbed. The song of the male with its shifting repetition of notes reminded me of a vocalist practising scales.

73. **Amphispiza nevadensis nevadensis** (Ridgway). SAGE SPARROW.—Locally distributed and breeding in the sage grown areas. A breeding female was taken May 30 and other sage sparrows were seen on June 4 and 6.

74. **Melospiza melodia montana** (Henshaw). MOUNTAIN SONG SPARROW.—The Song Sparrow in the main inhabited the fringing clumps and growths of dead tules (*Scirpus occidentalis*) remaining from last year, venturing up into the sage brush to feed, or occasionally to nest. In the dead tules the birds made a great rustling in creeping about so that I looked continually for larger birds, when I heard them. A nest found May 28 was placed on the ground in a slight hollow at the foot of a sage about 30 feet above the border of the rushes. It was a slight cup of grasses lined with hair from horses' tails and contained four eggs. I judged from their actions, however, that most of the birds were nesting in the more secure shelter of the tules. A female was seen carrying excrement from a nest on June 1, and June 4 young were heard calling. After this date young became common.

75. **Pipilo maculatus montanus** Swarth. MOUNTAIN TOWHEE.—This Towhee was common on the slopes and in the gulches above the lake,

seeming to prefer for cover, thickets of scrub oak and clumps of *Ribes* and *Amelanchier*. The birds were common on my arrival and males were singing, but they may be late in nesting as a mated female collected June 9 was not yet ready to lay.

76. **Oberholseria chlorura** (Audubon).* GREEN-TAILED TOWHEE.—Fairly common on the sage grown slopes above the lake. Males were heard singing daily, and occasionally the birds were observed skulking about in the dense growth. A nest found on June 11 was placed in a sage about two feet from the ground. It was large and well-cupped in form and was composed externally of grass and weedstems while the lining was made of finer material. It contained three eggs whitish in color, well spotted with brown and lilac.

77. **Zamelodia melanocephala** (Swainson). BLACK-HEADED GROSBEAK.—This grosbeak was rather rare in occurrence about the lake. Males were observed on June 2 and 9 in a gulch in the hills.

78. **Piranga ludoviciana** (Wilson). WESTERN TANAGER.—This Tanager was fairly common among the Yellow Pines in the hills. The song resembled that of the Scarlet Tanager but was short, slightly more broken and somewhat less harsh in tone.

79. **Progne subis** (Linnaeus). PURPLE MARTIN.—Migrant birds were observed above the lake on June 8, 9 and 13.

80. **Petrochelidon lunifrons lunifrons** (Say). CLIFF SWALLOW.—One cliff Swallow was seen with a flock of Violet-green Swallows on May 25 and on the morning of May 26 a flock of 25 appeared. The birds were common from then on. Old nests were observed under the cliffs in several localities but the birds did not begin building this year until June 9. On June 11 they were building nests on the sandstone cliff above the Laguna de la Puerta. The birds came down to the lake shore in little bands of ten or a dozen and alighted close together with trembling wings extended at an angle from their backs, standing high on their legs to avoid soiling their feathers. After alighting they leaned over, filled the mouth with mud with one or two sharp digs and then rose to fly back up the steep slopes to the colony. Males frequently alighted on the backs of the females as they gathered mud and copulation took place while the birds were on the ground. Males as well as females took part in nest-building, as a male shot here had the mouth filled with mud held in a mass in the mouth cavity above the tongue.

81. **Hirundo erythrogastra** Boddaert. BARN SWALLOW.—A male came about the cabin at the lake on June 10, examining ledges under the eaves, and a pair was seen on June 14.

82. **Tachycineta thalassina lepida** Mearns. NORTHERN VIOLET-GREEN SWALLOW.—These swallows came in flocks about the cabin at the lake during May and swung tirelessly back and forth in the wind, barely skimming over the tops of the sage brush, in search of the many Chironomids that had taken refuge there. Often they came beating about me,

**Oreospiza chlorura* of the A. O. U. 'Check List.'

almost passing within reach, so that I heard the soft click of their bills as they seized their prey. On calmer days they circled high in the air or at intervals returned to sweep down over the sage. Occasionally in early morning I saw them resting in little flocks in the sun in the tops of still leafless cottonwoods. By June 2 the flocks of these swallows had retired to the hills where they were found about the limbs of dead yellow Pines inspecting woodpecker holes with much chattering and flying about. The birds then often hovered in the air with rapidly moving bills, the males seeming to endeavor to seize the females by the feet, or the feathers of the abdomen, while others circled about calling excitedly. Cold storms during the first week of June frequently brought them back in flocks to feed over the flats but when the sun came out again they disappeared once more in the hills. After June 7, though fairly common in the gulches above, comparatively few came down along the shore of the lake.

83. **Stelgidopteryx serripennis** (Audubon). ROUGH-WINGED SWALLOW.—Single individuals were observed on May 24 and 25, and a pair was found in an arroyo near the cabin on June 8.

84. **Vireosylva gilva swainsoni** (Baird). WESTERN WARBLING VIREO.—These Vireos were found in the thickets lining the gulches and among groves of aspens. They were not observed until June 2 but probably arrived two days or more earlier, as I found one pair on that date with a nest partly constructed in a chokecherry tree (*Padus melanocarpa*).

85. **Lanivireo solitarius plumbeus** (Coues). PLUMBEOUS VIREO.—The Plumbeous Vireo was common among the Yellow Pines in the hills above the lake on May 26, and was noted on all of my subsequent work in areas suited to it. On May 26, males were in full song, and one was observed carrying a bit of nesting material about with it and singing at the same time. The birds were found entirely in the Yellow Pines and often ranged in the tops of the tallest of these. They continued in full song until the middle of June and then became more silent. Some of the call notes given by this bird reminded me of the chattering calls of *Lanivireo flavifrons* while many notes introduced into the song were similar to some of the phrasing used by the White-eyed Vireo.

86. **Vermivora virginiae** (Baird). VIRGINIA'S WARBLER.—This warbler was common among the thickets of small oaks in the gulches and on the higher slopes around the lake, but was so secretive that it was difficult to observe. The males often sang from the tops of tall yellow pines, where they chose a hidden perch and remained motionless. When disturbed by some one moving about below they flew off for some distance, sometimes remaining in the pines and continuing to sing, or again pitching down into the undergrowth where they were hidden from sight. The song varied somewhat but usually could be identified without particular trouble. An incubating female was shot on June 16. The callnote of this species is a sharp emphatic chip, but though the birds scolded at me frequently it was seldom that they came out in sight to do so.

87. **Vermivora celata celata** (Say). ORANGE-CROWNED WARBLER.—This Warbler nested in small numbers in the gulches below the lake. Apparently it was a late migrant as it was not observed until June 2, when a female was collected in a grove of quaking aspens. On June 9 a male was encountered on an oak-grown hillside over which small Yellow Pines and Douglas Firs were distributed. This bird was rather inactive and often flew up into trees, usually conifers, to remain quiet and sing from some hidden perch. Once or twice while under observation it stopped to rest in the sun on a dead limb. The song, given constantly ,was a rapid hurried trill, resembling the syllables *tsee-ee-ee-ee-er-er-er*.

88. **Dendroica aestiva** (Gmelin). YELLOW WARBLER.—This warbler apparently was found at the lake only as a migrant, though it nested along the Brazos River farther east. Single individuals were observed along the lake shore on May 23 and June 1 in willows and small cottonwoods. No specimens were taken.

89. **Dendroica auduboni auduboni** (J. K. Townsend). AUDUBON'S WARBLER.—This warbler nested in fair numbers in the Yellow Pine areas surrounding the lake. Males were found singing from the tops of the tallest Pines and were slow and leisurely in their movements in great contrast to their habit at other seasons. Frequently while singing they remained on one perch for some time so that often it was difficult to find them. The song resembled the syllables *tsil tsil tsil tsi tsi tsi tsi*. In a way it was similar to that of the Myrtle Warbler but was louder and more decided in its character.

90. **Dendroica graciae** Baird. GRACE'S WARBLER.—A small number of Grace's Warblers were encountered at the head of one of the gulches east of the lake, first on June 9, and again on June 16. Males only were observed. In actions and general appearance they reminded me strongly of *Dendroica dominica*. Usually they were found in the tops of the Yellow Pines where they worked about rather leisurely, exploring the smaller limbs and at short intervals pausing to sing. The song was a rapid repetition of notes somewhat reminiscent of the efforts of the Chipping Sparrow, but with the notes evenly spaced, not blurred at the end, and closing abruptly, so that the last syllable was as strongly accented as any of the others. It resembled the syllables *chip chip chip chip chip* given in a loud tone. Occasionally one was found working about through the oak undergrowth at times coming down almost to the ground. The flight was undulating and rather quick and jerky.

Grace's Warblers showed some curiosity toward me but in the thick brush it was difficult to follow them about. The callnote was a very faint *tsip* that carried only a few feet at best, and was so weak and soft that it was hard to locate the direction from which it came, so that birds that could not be found were heard often among the oaks.

91. **Seiurus noveboracensis notabilis** Ridgway. GRINNELL'S WATER THRUSH.—One of these birds was observed at the spring near the cottonwoods on May 23 and 25.

92. **Geothlypis trichas occidentalis** Brewster. WESTERN YELLOWTHROAT.—It was estimated that fifteen pairs of Yellowthroats were nesting around the lake. These birds were found in the tules, usually in that part of the growth that was standing in water adjacent to the shore. They sang constantly, but were so retiring that they seldom came under observation though it was usually possible to call them up into sight in the rushes by squeaking. Occasionally they gave the grasshopper-like trill that is sung so commonly by eastern birds.

93. **Wilsonia pusilla pileolata** (Pallas). PILEOLATED WARBLER.—A few of these birds occurred during migration. A female was shot on May 26 in oak scrub on a dry hillside and one was seen on June 2 near the spring at the cottonwoods. The specimen taken belongs to this form and all other notes are included here.

94. **Oreoscoptes montanus** (J. K. Townsend). SAGE THRASHER.—This Thrasher was observed first on May 29 after which it was fairly common in the areas covered with sagebrush about the lake. Males frequently sang from perches at the summits of the tall sage and the birds were observed occasionally in passing across the knolls and flats. At its beginning the song is somewhat like that of a grosbeak. As the notes wander on, to change and become more intricate, burring calls, that while harsh are not unmusical, creep in as an accompaniment to clearer whistled notes that are varied and pleasing. Low trills and changing combinations mark the song, reminding one of the improvisation of some gifted musician who, playing apparently at random, brings forth tones that follow one another in perfect harmony.

95. **Mimus polyglottos leucopterus** (Vigors). WESTERN MOCKINGBIRD.—The mockingbird was fairly common in the junipers on the flats and in the canyons near the lake. Males were heard singing frequently and one pair nested not far from the cabin.

96. **Salpinctes obsoletus obsoletus** (Say). ROCK WREN.—The Rock Wren was common around the lake and was seen frequently. Long slopes covered with fragments of broken sandstone were their favorite haunts.

97. **Catherpes mexicanus conspersus** Ridgway. CANYON WREN.—On June 2 I found a pair of these wrens about some sandstone ledges in a gulch east of the lake. The female was working busily carrying nesting material into a rock crevice, while the male remained nearby but made no effort to assist her. Once as the female passed him he ran out across the rock face with spread tail, and wings partly open and trailing, giving a low churring note. And at short intervals I heard his fine song ringing through the woods. The female ceased her labors once and sat for a few minutes in the warm sun to preen her feathers, finally resting for some time with eyes partly closed, apparently almost asleep.

On June 9 I examined the nest site and found the female on the completed nest, which however was empty. She remained on the nest until I had nearly touched her, though I had made considerable noise in climbing

along the rock face as I approached. The nest was placed on a small shelf of rock in the top of a shallow cave or hollow in a sandstone cliff. This ledge was about fifteen feet from the floor of the gulch, and the cave was approximately three feet high.

On June 16 this nest contained four eggs. The female darted from the nest as I came up to it and went on away without stopping to scold. The male was singing a short distance away but did not come near. The nest measured 8 inches across the base and 3 inches tall. The cup containing the eggs was 2½ inches in diameter and 2 inches deep. The foundation was composed of a dozen or more small twigs upon which were placed moss and masses of spider webbing with bits of leaves, catkins and bud scales. The nest lining was composed of a heavy felting of sheep's wool, most of it white, though a few bits of dark brown wool were mixed through it. In addition, in the cavity containing the eggs, were a few feathers of Great Horned Owl, Violet-green Swallow and Cassin's Finch. The eggs were translucent white in color, dotted mainly about the large end with small spots of reddish brown.

98. **Troglodytes aedon parkmani** Audubon. WESTERN HOUSE WREN.—The House Wren was fairly common in the wooded areas on the hills above Lake Burford, and was nesting in Woodpecker holes and other cavities in trees.

99. **Telmatodytes palustris plesius** (Oberholser). TULE WREN.—On May 27 a Tule Wren in very worn plumage was seen creeping about in a stand of dead rushes, but no others were observed during the course of the work at the lake. The growths of tules seemed favorable for them in every way so that their absence was rather surprising.

100. **Sitta carolinensis nelsoni** Mearns. ROCKY MOUNTAIN NUTHATCH.—This Nuthatch was fairly common among the pines above the lake.

101. **Sitta pygmaea pygmaea** Vigors. PYGMY NUTHATCH.—The Pygmy Nuthatch was fairly common among the Yellow Pines and was breeding here as incubating females were taken on June 9 and 16. This was one of the few mountain birds that showed marked curiosity and responded readily to squeaking.

102. **Penthestes gambeli gambeli** (Ridgway). MOUNTAIN CHICKADEE.—Fairly common in the Yellow Pine forests about Lake Burford. On June 16 I found a nest of this species in a living quaking aspen in an old woodpecker hole located about five feet from the ground The tree grew on a slope in a narrow gulch and the nest opening was well concealed in the brush so that I had some difficulty in finding it. Cutting into the nest I found that it contained five young nearly fledged. Later in another locality I saw a female carrying food to young.

103. **Planesticus migratorius propinquus** (Ridgway). WESTERN ROBIN.—The Western Robin nested commonly in the gulches around Lake Burford and one or two pairs were found in the grove of cottonwoods

near the spring. Two empty nests found on June 16 were placed in scrub oaks on sloping limbs about six feet from the ground.

104. **Sialia mexicana bairdi** Ridgway. WESTERN BLUEBIRD.—A few of these birds were found among the Yellow Pines on the hills above the lake. They were nesting here and were observed at frequent intervals.

105. **Sialia currucoides** (Bechstein). MOUNTAIN BLUEBIRD.—The Mountain Bluebird was common about Lake Burford, ranging from the lake shore to the tops of the hills. A nest found May 25 near the cabin was placed in a cleft between two forking limbs of a cedar four feet from the ground. A cavity about ten inches deep had rotted out here and the bluebirds had built in the bottom of it. Immediately beside the opening was a notice printed on muslin, posted by Biological Survey trappers to warn against the theft of wolf traps. The nest when found contained five eggs that hatched about June 3. It was interesting to note that young were found out of the nest among the pines on the hills on May 26, another instance of the fact that the season was farther advanced on the hills than it was in the valley below.

U. S. Biological Survey, Washington, D. C.

NOTES ON THE BREEDING HABITS OF THE RUSTY BLACKBIRD IN NORTHERN NEW ENGLAND.

BY FRED H. KENNARD.

Plates XIX–XX.

WHILE the Rusty Blackbird is a common spring and autumn migrant in New England, and is known to breed along our northern boundaries, but little seems to have been written about its nesting habits, except by Bendire, who has described them in some detail; while its eggs are comparatively rare in collections. Hence, in the spring of 1914, I fell a victim to the blandishments of Owen Durfee and agreed to join him in a hunt for their nests. I had noted Rusty Blackbirds several seasons before, while fishing for landlocked salmon in Essex County, away up in the northeast corner of Vermont, and thither we decided to journey.

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2

NESTING SITES OF RUSTY BLACKBIRDS

1. On top of old stump. 2. In stranded Spruce bough.

As the limited space at my disposal will not allow of the telling of all the pleasures and disappointments of our quest through this and succeeding seasons, I shall try merely to give an account of the nests we discovered, with a brief description of the surroundings of each, and then tell collectively of the bird's habits as I observed them.

Carefully, as we thought, arranging the time of our hunt so as to find freshly laid sets of eggs, we were on the ground on May 30, and on the 31st succeeded on finding two nests, both with young birds.

One containing four young birds, two or three days old, was placed about six feet up, against the trunk of a small, thick-growing spruce, on the edge of a thicket of evergreens, growing in a swamp at the end of a small trout pond.

The other, containing three young birds one or two days old, and one addled egg, was placed about seven feet up, between the trunks of two spindling little balsams in an almost impenetrable clump of evergreens. This was beside a logging road, perhaps twenty-five yards back, on the bank of an inlet to a large lake.

As the season hereabouts had been late this year and the woods and swamps were, I am told, still deep in snow during the first week in May, these birds must have started their nest building before the snows disappeared.

In 1915 we were again in the field after the Essex County birds, and determined to be there on time. May 21 found us in camp, and we spent the morning in a fruitless hunt for the trout pond birds, which had apparently moved back into the swamp, and in the afternoon succeeded in finding two nests on the shore of the larger lake. The first contained four young birds, and was placed about eight feet up, between the tops of two thin little spruces in a thick clump of evergreens. This undoubtedly belonged to the same pair of birds whose nest we had discovered last year, and was only about fifty yards from their last year's location. These eggs must have been laid by May 5 and the nest started in April, sometime before the snow is ordinarily out of the woods in this region. While the month of May had been exceedingly cold, wet, and disagreeable, the weather during April had been warm and fine, and this perhaps may account for the unusually early nesting of the species this year.

Later in the day we discovered another nest, about a quarter of a mile away, containing five eggs, too hard set to save, placed about five feet above the ground, between the tops of two stocky little spruces, in a thick second growth of evergreens. This nest was on the bank, well above the level of the lake, and perhaps fifty yards from its shore.

Disappointed but not discouraged we continued our hunt for a week; and finally on May 27, located another nest over in Coos County, New Hampshire, with four young two to three days old. This nest was in a swamp at the end of a small pond, and was about six feet up in a small dead spruce standing out by itself. The top of the tree had been broken, and bent over at an angle of about forty-five degrees, and here just below the break, in a tangle of dead branches and usnea moss, the nest was placed. About this time our enthusiasm began to ooze and we returned home, to resume the hunt in 1916.

May 19, 1916, found us again in Essex County, and this time we were rewarded by finding a nest and two fresh eggs. I took the set of four on the 22d, after visiting the nest twice daily. This probably belonged to the same pair whose nests we had found the two previous seasons, and located perhaps fifty feet from their last year's nest, was built about five and a half feet up, in a little spindling spruce, in an almost impenetrable thicket, close to the shore. The female was sitting on her eggs at each of my several visits, though she flew off silently upon my close approach.

I did not get over into New Hampshire this year, but on May 29, Durfee visited the location of the last year's nest, that we had found in the swamp, and again found young birds three to four days old. This nest was perhaps fifty feet from last year's, and was placed about six feet above the surface of the swamp against the trunk of a small spruce.

I was unable to do any collecting in 1917, but on May 16, 1918, was again in the field, this time with Mrs. Kennard, in Penobscot County, Maine, about seventy-five miles northeast of Bangor, where I had seen Rusties while on a fishing trip during a previous season. There is a trout brook there, that for the last hundred yards or so, flows through a swamp before joining the waters of a

small lake. Because of the shyness of the bird, and the fact that incubation had not yet begun, it was not until May 21, that we finally succeeded in locating the nest, with two fresh eggs, in a dead spruce top, that had floated down the stream in the spring floods, and become stranded near its mouth. It was only a foot above the surface of the water, in a tangle of usnea moss, and so well hidden that we had paddled by it in our canoe time after time without ever suspecting its presence. The nest was visited daily until the 24th when I took it with five eggs.

On June 5, I found the second nest of this pair, containing five eggs,—this time perhaps a hundred yards back in the swamp, about twenty feet up, in a tall, unhealthy looking spruce. It was placed in one of those thick bunches of evergreen twigs that sometimes grow close to the trunk of a spruce, and could not be seen from the ground. They had built this second nest and laid five eggs in exactly twelve days.

On June 16, I found their third nest, containing four eggs, this time it was built near the first nest, beside the brook, in a tangled growth of sweet gale overhanging a ditch, and about two feet above the water. They had finished this third nest and laid four eggs just eleven days after the taking of the second nest. I felt like a pirate in taking it, but wanted to find out how persistent these birds could be under continued adverse conditions.

I was called home at this time, but on July 14, returned to the woods, and found their fourth nest. This time they had built upon the opposite side of the brook, about ten feet back from the edge of the stream, in a thick growth of button-bushes. The nest was placed in a crotch, a couple of feet above the water, just as a Red-wing's would have been, and contained three young birds only a few hours old, and one egg which hatched the next morning. The young were watched daily till fledged. Allowing fourteen days for incubation, it appears that this industrious pair built their fourth nest and laid this last set of four eggs, in fourteen days, a remarkable and exceptional performance, as other pairs left at once when their nests were taken.

On June 10, I found another nest containing four eggs, in various stages of advanced incubation. This was placed about four feet up against the trunk of a comparatively isolated, thickly

branched small spruce, back on dry land about seventy-five yards from the shore of a large lake. The nest was normal in construction and position, but the eggs closely resembled, except in size, those of the Bronzed Grackle,—so much so, that had I not found the nest myself, and had a close view of the very distressed old birds, I should have had grave doubts as to their identity.

The spring of 1919, found me again in Penobscot County, where I succeeded in finding the following nests:

On May 19, I again discovered the nest of the trout brook birds, placed about five feet up, in a thin clump of slim spruces, close beside a logging road that leads through the swamp there. I took the eggs, evidently slightly incubated, supposing that they would build another nest, as they had done last year, and which I could watch from start to finish. My intentions, however, seem not to have been appreciated, for they promptly disappeared and were not seen there again during the summer, discouraged no doubt, and who could blame them.

On May 25, in Washington County, Maine, I took a nest with five perfectly fresh eggs, the first I had ever seen, as in all sets taken previously, incubation had apparently begun with the laying of the first egg. This nest was built about two feet up in a little, low black spruce, one of a clump on a floating island, in a swamp caused by raising the waters of the large lake on which it was situated.

A nest discovered on May 27, in Penobscot County, contained five recently hatched young. This nest, near the shore of a large stream, bordered by miles of dead wood, was placed about eight feet up, and absolutely hidden in a matted tangle of dead limbs and usnea moss, where a big spruce had fallen across a smaller one.

On June 5, also in Penobscot County, I found still another nest with four unincubated and slightly addled eggs, built about five feet and a half above the ground, in a small thick spruce, in a clump of evergreens a few feet from the shore of a large lake. This nest had evidently been deserted.

Arriving in southern New England usually in the latter part of March, or early in April, these birds loiter along on their leisurely migration, and arrive on their breeding ground along our

NEST AND EGGS OF RUSTY BLACKBIRD

northern borders late in April or early in May, about the time the ice goes out of the lakes and often before the snow is melted in the surrounding woods and swamps. Here they spread out through their accustomed haunts, along the shores of the secluded lakes and ponds, among the swamps, or along the brooks and streams, showing a particular fondness for the "dry-kye" or dead-wood among the back-waters. To these places they return season after season. Though gregarious throughout most of the year, I have never found more than one pair in a given area during their nesting season. There may be colonies of Bronzed Grackles and Red-wings breeding close by, but never more than one pair of Rusties. The nearest I have ever found them being a quarter of a mile apart.

C. J. Maynard in his 'Birds of Eastern North America' writes of some "perfectly inaccessible" "sloughs" in the Magdalen Islands, as follows: "I had observed Blackbirds about there on several occasions, but as they kept well in the centre of the large tracks, I could not make out at first what they were, but after a time found a large colony of Rusty Grackles were evidently building in one of the above described places." As Mr. Maynard seems to have been doubtful as to the identity of the birds in the first place, and later confesses that "all efforts to penetrate this fastness proved unavailing" this evidence as to these birds sometimes breeding in colonies seems hardly conclusive.

In northern Vermont and New Hampshire where the migration up the Connecticut valley seems to bring them early to their breeding grounds, they start their nest building early in May, while in eastern Maine, only a trifle farther north, they usually do not start until the middle of the month.

For sites they seem more apt to choose evergreens, preferably thick clumps of second growth spruce and balsam, though I have found them in dead trees or in clumps of deciduous bushes, button-bush and sweet gale, along the shores of some stream. Audubon writes of finding "their nest among the tall reeds of the Cats-tail or Typha." Samuels tells of nests along the Magalloway river in Maine, built in low alders overhanging the water, and Chapman records their having built upon the ground, though I can find no further record of their so doing.

My friend, William Lyman Underwood, tells me of a nest he found on June 19, 1900, in Penobscot County, Maine, built in the top of an old stump, standing in the water, out from the shore of a lake. and containing three eggs upon which the female was sitting. Owing to the difficulty of photographing the nest and eggs in situ, he had his guides saw off the stump, carry it across the lake, perhaps a quarter of a mile, to a beach where he could set it up and photograph it. They then brought the stump back, and replaced it securely upon its foundation; and the female returning, continued her parental duties and raised her young.

The nests in situ, are in the majority of cases difficult to photograph, because in the positions usually chosen, in thick clumps of low evergreens or bushes, the cutting necessary in order to set up one's camera and properly focus, would destroy the natural surroundings.

While, owing to their shyness, I have never been able to catch the birds at nest-building, I have examined a good many deserted nests besides those recorded above, and a careful examination of the nests in my collection shows their method.

In construction, those that I have seen, have all been particularly well built, rather bulky structures, and practically alike. A foundation is usually laid of usnea moss, sometimes in thick masses, and upon this they build their outside frame-work of twigs, usnea, lichens and occasionally a few dried grasses. In one of the nests in my collection the twigs used were mostly dead hackmetack, in another spruce, while in the remainder, twigs from deciduous trees predominated. This framework usually becomes thicker and more substantial as it progresses upward.

Within this outside frame they construct a well modeled hollow bowl, between five and one-half and six centimeters in depth, and between eight and one-half and nine and one-half centimeters inside diameter. This bowl, which seems to the casual observer to be made of mud, is in reality made of "duff," the rotting vegetable matter with which the ground of this region is covered, and which when dried becomes nearly as hard and stiff as papier mache; and shows their interesting adaptability to conditions, as real mud must at this season be hard to find. A cross-section of the nest shows the bowl to be of varying thickness, but averaging

between five and ten millimetres, and so pressed onto its surrounding frame as to become, when it hardens, a part of it.

After the bowl has been carefully modeled and smoothed off on the inside, it is lined with the fine, long green leaves of grasses that grow in the swamps thereabouts, and is finally topped off with dried grasses and fibres of various sorts, and a few thin, bendable twigs. In recently constructed nests I have found the green lining to be absolutely constant, although as incubation progresses, these grasses, of course, gradually turn brown. The diameter of the nest when finished, just across the outside of the bowl, averages about twelve centimetres, while the diameter of the entire structure, except for a few outreaching twigs, varies from fourteen to twenty centimetres. The usual measurements from foundation to top of bowl are from eight and one-half to nine centimetres.

Audubon in Vol. II of his 'Ornithological Biography,' writes that "The nest is not so large as that of the Redwing, but is composed of much the same materials. In Labrador I found it lined with moss instead of coarse grass. The eggs are four or five, of a light blue color, streaked or dashed with straggling lines of brown or deep black, much smaller than those of the Redwing, but in other respects bearing considerable resemblance to them."

Such nests as Audubon may have found, must, if they were Rusty Blackbirds', have been very exceptional, and the above information is certainly misleading. The female Rusty is considerably larger than the female Redwing, and builds a much larger and bulkier nest, and the eggs, four or five in number, are ovate in shape, larger, more fully rounded and less elongated than Redwing's, which they in no way resemble; and smaller than those of the Bronzed Grackle; the fifty-three in my collection averaging 25.57 millimetres x 18.56 millimetres.

Bendire describes them well as follows: "The ground color is a light bluish green, which fades somewhat with age, and is blotched and spotted more or less profusely, and generally about the larger end of the egg, with different shades of chocolate and chestnut brown and lighter shades of ecru, drab, and pearl-gray. The peculiar scrawls so often met with among the eggs of our Blackbirds are rarely seen on these eggs, which are readily dis-

tinguishable from those of the other species." As I have noted with other species, the last laid egg may be less heavily marked; particularly if the birds have been disturbed in previous settings. In the two last sets of the trout brook pair, the last laid eggs were grayer and without the glaze of the others. Apparently they run out of pigment towards the last.

The female usually starts incubation with the laying of the first egg, particularly in the early spring, when the weather is cold, and sits pretty close, flying off only upon one's near approach. Particularly shy birds may, when disturbed, disappear without uttering a note, but the great majority that I have observed will remain in the vicinity of the nest, uttering their loud "chips" of alarm, becoming more and more distressed, when disturbed, as incubation progresses, until after the hatching they are particularly vociferous. During incubation the male is very assiduous in his attentions to the female, feeding her frequently, and seldom flies far from the nesting locality. The female at this season is usually seldom in evidence, but by watching the male, one can soon determine by his actions the approximate locality of the nest. He has the very conspicuous habit of sitting on the top of some tall dead stub or tree, often with a nice fat grub in his bill and calling to the female. This call note is a two-syllabled "conk-ee," very similar to the three-syllabled "conk-a-ree" of the Redwing, but clearer and more musical, and usually distinguishable from the notes of the other blackbirds.

If disturbed by the proximity of watchers, he may delay for a while, uttering an occasional "chip" of alarm, but sooner or later he will fly close to the nest or to the top of some nearby stub, when the female will fly out to him, and with low "chucks" and much fluttering of wings, partake of the delicious morsel he has brought her. The knowledge of this habit, acquired during our second trip, greatly simplified our hunts during succeeding seasons.

It has so happened that I have never been able, from personal observation, to check up the exact time of incubation, but Bendire states it to be "about two weeks" and Dr. Bergtold states that it is "14 days."

The young, when hatched, are covered with a long, thin, fuscous natal down; and fed by both parents, at frequent intervals, de-

velop rapidly, as such young birds do. The nest is kept clean, and I saw the female frequently drop a white fecal sac in the nearby brook, as she flew away from feeding her charges. By the fifth day, the primary quills and other wing feathers are well under way, while the growths along the remaining feather tracts are starting; and slight slits begin to show between their eyelids. By the tenth day the young are well covered with feathers, through which some of their natal down still protrudes, and their eyes are nearly but not quite wide open.

A tragedy occurred to the only brood I was able to watch, for on the tenth day after hatching, one of the young was found in the water, about ten feet from the nest, dead and partially eaten. Whether he deliberately climbed from the nest, and later fell into the water, or was taken by some animal, will never be known, but the next day the three remaining young all climbed out into the adjoining bushes, it seemed to me, ahead of schedule time, for their eyes were hardly open, and they were still unable to fly.

They remained in the immediate vicinity of the nest for the next two days, climbing and hopping from bush to bush, with both parents in close attendance, till on the thirteenth day, they had learned the use of their wings; and in the evening the last one was seen to fly across the stream, followed by its mother, and to disappear in the swamp beyond.

The actions of the male, of this particular brood, were peculiar, for, after being very attentive to the female during incubation, he spent his days, as soon as the young had hatched, away from the locality, never helping the female in any way with her duties, except in the evenings, when returning with some other Rusties, that he had apparently been spending the day with somewhere, he would help feed the young, and spend the night in the vicinity.

As soon, however, as the young climbed out of the nest, he resumed his share of the parental duties throughout the day. Perhaps under normal conditions, he would have been taking care of the young of a first brood, while the female took care of a second.

Whether or not Rusty Blackbirds may occasionally raise a second brood, I am unable to say. I believe the Redwings do, for I have found their nests late in the season; and on July 20, 1918, in Washington County, Maine, I watched, for some time, a pair

of Rusties feeding fledglings. This was near a colony of Bronzed Grackles, and it is possible that their previous nests may have been disturbed, but it seems probable that this may have been a second brood.

About the middle of July, the Rusty families seem to desert their solitary breeding haunts, and again become gregarious, and are seen in small flocks, flying high overhead, between the lakes, or feeding along their shores, getting ready for their southern migration.

Dudley Road, Newton Centre, Mass.

THE GENERA OF CERYLINE KINGFISHERS

BY WALDRON DEWITT MILLER

In a note published in 'The Auk' (1918, p. 352) the writer advocated the union in one genus, *Megaceryle*, of all the large, conspicuously crested Ceryline Kingfishers. These had been divided by Mr. Ridgway (Birds N. and Mid. America, Pt. VI, 407) into *Megaceryle* and *Streptoceryle*. At that time I overlooked the fact that *Streptoceryle* might be inadmissable on nomenclatural as well as on zoological grounds.

I. NOMENCLATURE.

In my 'Revision of the Classification of the Kingfishers' (Bull. Amer. Mus. Nat. Hist., XXX, 1912, p. 265) the type of *Megaceryle* Kaup, 1848, was given as *M. maxima* by subsequent designation of Gray in 1855. The early history of the genus *Megaceryle* is briefly as follows:

Megaceryle new subgenus, Kaup, 1848. Contained four species, all of which are still referred to it when the genus is used in the broad sense.

"*Megaceryle* Kaup," Reichenbach, 1851. (Handb. Alced.) The same species given by Kaup, (except that the Asiatic spec-

ies *M. guttata* was replaced in *Ceryle*) with three others, none of which is more than subspecifically distinct.

"*Megaceryle* Reich." Bonaparte, 1854. (Consp. Volucr. Anisod.) The same Old World species given by Kaup with the addition of *M. lugubris* (the Japanese representative of the continental Asiatic *M. guttata*, perhaps only subspecifically distinct). A new genus, *Streptoceryle*, was proposed for the two American species.

"*Megaceryle* Reichenb. 1851" Gray, 1855 (Cat. Gen. and Subgen. of Birds). Type "(Alcedo maxima, Pall.)."

As stated in my paper, "In specifying the *last* species as the type (*maxima* being the fourth and last species mentioned by Kaup) Gray was probably influenced by Reichenbach's ill-advised action (in 1851) in transferring *guttata* (*guttulata*) from *Megaceryle* back to true *Ceryle*, and by Bonaparte's removal (in 1854) of *torquata* and *alcyon* to his genus *Streptoceryle* leaving only the single species *maxima* in *Megaceryle*. Possibly also the fact of there being two *guttatas*, that of *Boddært* (= *maxima* Pallas) and that of Vigors (= *guttulata* Stejn.) made it seem undesirable to Gray to fix *guttata* as the type." *M. maxima* stood first both in Reichenbach's and Bonaparte's arrangements.

Chloroceryle and *Megaceryle* were proposed by Kaup in the same sentence, both as subgenera. Reichenbach credited both to Kaup, raising them to generic rank. Bonapart credited *Chloroceryle* to Kaup, but for some unexplained reason or more probably through carelessness gave Reichenbach as the authority for *Megaceryle*. Gray, a year later, credited both genera to Reichenbach.

Five years later (1860) Cabanis and Heine proposed the name *Ichthynomus** for the African species *M. maxima*, quoting as a synonym "*Megaceryle* Rchb. 1851 (nec Kaup 1848)," properly crediting *Megaceryle* to Kaup but restricting it to *guttata* and *lugubris*. It is not evident whether they overlooked or purposely ignored Gray's designation of *maxima* as the type of *Megaceryle*.

In the 'Hand-list of Birds' (1869) Gray followed the arrangement of Cabanis and Heine, thereby repudiating his original type

* In the Birds of North and Middle America (Pt. VI. p. 407) this name is erroneously quoted as "*Ichthyonomus*."

designation. Sharpe (Monograph Alcedinidæ, 1870, and Catalogue of Birds, 1892) also gave *guttata* as the type of *Megaceryle*. The A. O. U. 'Check-List' (Third Edition, 1910, p. 183) however, gives *maxima* as the type of *Megaceryle*, following Gray's original designation. Mr. Ridgway, on the other hand, follows Cabanis and Sharpe in considering *guttata* as the type.

The fact that Gray credited *Megaceryle* to Reichenbach does not, in my opinion, affect the validy of his designation of *maxima* as the type. Reichenbach himself gave Kaup as the authority for the genus, and used the name in the same sense except for the omission of *M. guttata*. Bonaparte, however, although accrediting the genus to Reichenbach, restored *M. guttata* to its former place. If *Megaceryle* Kaup and *Megaceryle* Reichenbach are not considered identical from a nomenclatural point of view, at least the latter can be treated as equivalent to a substitute name. In this case the type of *Megaceryle* Reichenbach, *M. maxima*, becomes *ipso facto* the type of *Megaceryle* Kaup. Dr. J. A. Allen has shown (Bull. Amer. Mus. Nat. Hist., 1910, 332) that *Ispida* Brisson 1760 may be considered a substitute name for *Alcedo* Linn. 1758, thus rendering *Ispida* a synonym and obviating the possible necessity of having to use *Alcedo* in place of *Megaceryle*. I have had some correspondence with Dr. Chas. W. Richmond regarding the nomenclature of this group and wish to express my indebtedness for his advice.

With *M. maxima* as the type of *Megaceryle* this becomes the proper generic name for the American species, it now being universally agreed that the latter are congeneric with the African species. Bonaparte in proposing *Streptoceryle* for *M. torquata* and *M. alcyon* considered *M. maxima* to be more nearly allied to *M. guttata* (= *guttulata*) than to the American species.

II. GENERIC AND SUBGENERIC CHARACTERS.

If the Asiatic species *M. guttulata* and *M. lugubris* are considered worthy of generic rank they must be given a new name. As stated in my note in 'The Auk' already mentioned, I do not believe this necessary for the following reasons: first, because the differences are virtually bridged by intermediates; second

because *M. alcyon* is nearly if not quite as distinct from *M. torquata* and *M. maxima* as is *M. guttulata;* third, because if *Megaceryle* is divided *Chloroceryle* must also be split up, for *C. amazona* stands alone in several respects.

A character of *M. guttulata* and *M. lugubris* that has not been pointed out is the considerably more extensive fusion of the third and fourth toes as compared with *M. torquata* and *M. alcyon.* In the former these toes are united to a point opposite the base of the claw of the second toe or sometimes even decidedly beyond; in the latter the union falls decidedly short of this point. *M. maxima* is perfectly intermediate; the toes are united just to the point mentioned or sometimes a little short of it. In this character *Ceryle* agrees with *Megaceryle torquata* and *M. alcyon,* while *Chloroceryle* agrees with *M. guttulata* and *M. lugubris.*

Further study has brought out additional characters separating the genera of Ceryline Kingfishers. In *Ceryle* and *Megaceryle* (*M. alcyon* and *M. torquata* examined) the greater secondary coverts of the under side of the wing although vestigial are distinct; in *Chloroceryle* (*C. amazona* and *C. americana* examined) these coverts are utterly wanting. In *Ceryle* and in *Chloroceryle* (all except *aenea* examined) the slip of the deep plantar tendon that supplies the hallux leaves the main tendon decidedly above the point where the latter trifurcates to supply the anterior toes. In *Megaceryle* (only *M. alcyon* examined) the four branches all originate at nearly the same point.

In *Megaceryle* (perhaps most so in *M. lugubris*) the planta tarsi is strongly papillose. In the three smaller species of *Chloroceryle* (subgenus *Amazonis*) the tarsus is not at all papillose while in *C. amazona* and *Ceryle* it is intermediate and apparently somewhat variable. Some specimens of *Ceryle* agree well with *Megaceryle,* in others the tarsus is less papillose. *Chloroceryle amazona* is nearer the smaller species of the genus, the tarsus never being as papillose as in *Megaceryle.*

I find that *Ceryle varia* agrees with *Chloroceryle amazona* and *Megaceryle* in having eighteen secondaries, these differing from the three smaller species of *Chloroceryle* which have but fourteen or fifteen secondaries. Dr. C. W. Richmond (Proc. U. S. Nat. Mus. 1893, 16, p. 511) states that the voice of *Chloroceryle*

amazona is quite different from that of the smaller species of the genus, much more resembling that of *Megaceryle alcyon* and *M. torquata.*

In my 'Revision' I quoted from P. Chalmers Mitchell's paper on the 'Anatomy of the Kingfishers' (Ibis, 1901, 120) regarding the deep plantar tendons of *Megaceryle* and *Chloroceryle.* Mr. Mitchell's description and figures show a striking difference between these two genera in the arrangement of the tendons. Of *Megaceryle* he described *M. maxima* and *M. alcyon;* of *Chloroceryle, C. americana* and *C. inda.* I have examined *M. alcyon, C. americana, C. inda, C. amazona* and *Ceryle varia.* My dissection of *M. alcyon* agrees essentially with that of Mitchell. On the other hand, my diagrams of the tendons of *Chloroceryle americana* and *C. inda* differ in important respects from Mitchell's figures of these species. They, as well as *C. amazona* and *Ceryle varia,* all agree essentially with each other and differ from Mitchell's figure of *M. alcyon* only in the position of the branch to the hallux. In *Megaceryle* the *flexor perforans digitorum* divides almost simultaneously into four branches, one for each toe, while in the other genera the slip for the hallux leaves the main tendon decidedly above the point where the tendon divides to supply the anterior toes. My dissections were made with great care, knowing that they did not agree with Mitchell's results, and a second specimen of *C. americana* was examined as a check upon the first; I therefore feel confident that the above statements are correct.

The following key shows the main differences, both internal and external, not only between the genera of the Cerylinae but also between the more marked groups of species.

a DIASTATAXIC; acrotarsuim scutellate; anterior toes shorter; upper parts not green; sexes alike in color of axillars; maxillary bone abruptly and somewhat more broadly expanded.

b A conspicuous vertical crest; bill stouter, its rami not overlapt by interramal plumage, the tomia more or less distinctly serrate; tarsus and hallux shorter and stouter; tail more rounded, rectrices not widened terminally, somewhat pointed; plumage rather harsh and lusterless, partly blue-gray and rufus, with no large white areas in scapulars, secondaries, outer webs of primaries, nor tail; larger (wing more than

144 mm). Clavicle with no distinct process near proximal end; coracoid with an upstanding process at inner side of foot; spina sterni externa shorter; projection on outer edge of preilium conspicuous; lacrymal less swollen, reaching maxillary; tendinal slip to hallux arising at end of tendon (*Megaceryle*)

c Culmen more curved and with thicker tip; crest larger; 3rd and 4th toes more extensively united.

Megaceryle lugubris
Megaceryle guttulata

cc Culmen straighter and with more slender tip; crest smaller, 3rd and 4th toes less extensively united.

d Bill stouter, the culmen nearly straight, the tomial serrations distinct; crest smaller; 10th primary nearer 6th than 7th (rarely exceeding 6th). Male with rufus in plumage; female with under wing-coverts rufous; larger (wing not less than 180 mm).

Megaceryle maxima
Megacryle torquata

dd Bill more slender, the culmen distinctly curved, the tomial serrations less distinct, often obsolete; crest larger; 10th primary nearer 7th than 6th (always decidedly longer than 6th). Male with no rufous; female with under wing-coverts white; smaller (wing not more than 170 mm).

Megaceryle alcyon.

bb No vertical crest; bill more slender, its rami overlapt by interramal plumage, the tomia entire; tarsus and especially hallux longer and more slender; tail less rounded, rectrices broadened and obtusely rounded terminally; plumage soft and silky, wholly black and white, with large white areas in scapulars, remiges and rectrices; smaller, (wing less than 144 mm). Clavicle with a distinct process near proximal end; coracoid with no upstanding process at inner side of foot; spina sterni externa longer; projection on outer edge of preilium very small; lacrymal much swollen, not reaching maxillary; tendinal slip to hallux arising above end of tendon. (*Ceryle*).....*Ceryle varia.*

aa EUTAXIC; acrotarsium not scutellate; anterior toes longer; upper parts glossy bronze-green; sexes differing in color of axillars; maxillary bone gradually and somewhat less broadly expanded. Other skeletal characters and plantar tendons as in *Ceryle varia.* (Differing further from *Megaceryle* in absence of vertical crest; entire tomia, and longer tarsus and hallux; and from *Ceryle* in more extensively fused anterior toes, shorter wing-tip, tenth primary shorter than sixth instead of longer; more rounded tail, and presence of rufous in plumage). (*Chloroceryle*).

b A conspicuous occipital crest; 18 secondaries; tail graduated for one-thirteenth of its length; 2nd toe with claw normally exceeding 4th without claw; outer webs of secondaries uniform green; green chest-band incomplete, the feathers not barred; larger (wing 125–146 mm)...*Chloroceryle amazona.*

bb Scarcely crested; 14 or 15 secondaries; tail graduated for one-fifth or one-sixth of its length; 2nd toe with claw rarely exceeding 4th without claw; outer webs of secondaries light-spotted; green chest-band complete, the feathers barred; smaller (wing 54–106 mm).....*Chloroceryle americana*
Chloroceryle inda
Chloroceryle ænea

The interrelationships not expressed in the key may be briefly stated. *Megaceryle maxima* agrees with *M. lugubris* and *M. guttulata* in the pattern of the primaries and approaches them in the markings of the upperparts and in the extent of cohesion of the toes. *M. alcyon* resembles these same two species in the slight development of the tomial serrations, and approaches them in the curvature of the bill and the size of the crest. *M. torquata* is practically identical with *M. alcyon* in the union of the toes and in the color of the upperparts, but *M. t. stellata* recalls *M. maxima* in the pattern of the upper surface.

At the time my paper was written no skeleton of *Ceryle varia* was available and the skull only of *Chloroceryle amazona.* I now have a complete skeleton of each of these species and am able to compare them with skeletons of *Megaceryle alcyon, M. torquata* and *Chloroceryle americana.*

Chloroceryle amazona resembles *C. americana* in the coracoid, spina sterni, and preiliac process; in the form of the clavicle it is intermediate between its congener and *Megaceryle.*

As indicated in the accompanying key, *Ceryle* agrees with *Megaceryle* in the form of the expanded maxillary, and with *Chloroceryle* in the shape of the coracoid and clavicle, in the long spina sterni, in the narrow lacrymal, the descending process of which is greatly swollen and does not reach the maxillary, and in the small size of the preiliac process. The anterior edge of the sternal keel agrees with that of *Chloroceryle amazona* and both of these species are in this feature intermediate between *Megaceryle* and *Chloroceryle americana.* In the relation of the pars plana to the

descending process of the lacrymal *Ceryle* is intermediate between the two other genera.

In internal characters therefore, at least in the skeleton and the deep plantar tendons, *Ceryle* bears a much closer resemblance to *Chloroceryle* than to *Megaceryle*, agreeing better with the latter only in the somewhat broader maxillary. While this conclusion is probably correct it cannot be considered final until confirmed by examination of the remaining species, particularly *Megaceryle guttulata* or *M. lugubris*.

ONTARIO BIRD NOTES.

BY J. H. FLEMING AND HOYES LLOYD.

THE following notes refer chiefly to the birds of Toronto, Ontario, although there are some references to occurrences in other parts of the Province.

Since the senior author published his article "Birds of Toronto, Ontario,"[1] twelve years ago, there has been much change in conditions affecting bird-life near Toronto. The land birds have not been seriously affected. The ravines, especially those of the Don and Humber Rivers, form decided obstacles to the expansion of the city and still contain wooded tracts which provide shelter and food for many migrants. However, the Humber River is now flanked by an automobile road and since the completion of the Bloor Street Viaduct the ravines of the Don Valley, already cut up by railroads, will soon be absorbed in the ever-growing city.

There has been a large aerial training camp on the banks of the Don, from which aeroplanes have been flying in scores for the past three years, but they did not drive away the smaller birds. Large hawks and gulls have been seen, pursued by the cadets in their aeroplanes, and fleeing in terror before such huge

[1] Auk XXIII, pp. 437-453 and Auk XXIV pp. 71-89.

adversaries. This camp is now closed and the original birds of the air may resume their travels in peace.

The most important changes from an ornithological point of view are those on the water-front. Ashbridge's Bay, once the haunt of many rare species of shore-birds and water-fowl, is all but converted into a cement-walled turning basin for freight vessels, and large areas of the marsh have been filled and the reclaimed section is being rapidly built up with factories. Even a street-car line runs across a portion of it.

Toronto Bay is no longer seriously polluted by sewage. In 1913 two interceptors were put in service which cross the city from east to west and convey all but storm sewage to a Disposal Plant at the north-east corner of what was once Ashbridge's Bay. Here the sewage is sedimented, and the liquid portion carried 2900 feet off shore into Lake Ontario by an outfall sewer. The separated sludge is drained and air-dried in large open beds.

This series of changes in the water-front has had and will continue to have a considerable influence on bird life. The harbor, being free from sewage, provides a safe haven for water-fowl, for they are protected there at all times. There is probably little food there now, but there may be more as the water becomes purer.

As little unsedimented sewage is emptied into the harbor or lake the number of gulls must decrease as many depended on this source of food especially in the winter. Through the field-glasses gulls may be seen feeding over the point in Lake Ontario where the outfall sewer discharges, so evidently enough solid material escapes after sedimentation to provide food for some birds.

The sludge beds at the sewage disposal plant provide food for many waders. The sludge often swarms with the larvæ of a fly and with an annulid worm and fairly large flocks of shore-birds stop there on migration. They are safe and inaccessible while on these sewage beds, in fact, only an ardent ornithologist would stay to observe them. Considering all these points we can be sure that the marsh-birds, the waders, and the water-fowl will not visit us in anything like their former numbers, and those that do come, to the marsh particularly, will not remain long.

Colymbus holbœlli. HOLBŒLL'S GREBE.—One taken at Toronto on March 5 and one on April 13, 1913, are early records, both in winter plumage.—J. H. F.

Colymbus auritus. HORNED GREBE.—On February 9, 1918, one was seen leisurely swimming among the drift ice in Lake Ontario near Toronto. It was -23° F. on February 5th, but rained on the night of February 8.—H. L.

Podilymbus podiceps. PIED-BILLED GREBE.—A male was taken at Toronto on April 2, 1918, by Mr. J. S. Carter. This is the earliest Toronto record and the bird had not yet assumed the adult male plumage. —H. L.

Larus marinus. GREAT BLACK-BACKED GULL.—A bird, not fully adult, was taken at Toronto Island October 31, 1914.—J. H. F.

Sula bassana. GANNET.—On November 5, 1918, Thomas and Duncan McDonnell shot a Gannet on Lake Ontario, near Gibraltar Point, Toronto. I obtained the bird from them in the flesh and found that it was a male (?) in immature plumage. Its stomach was empty but the bird appeared to be in good condition. There is one previous Toronto specimen[1] and about 4 others from the rest of the Province of Ontario, one being from Oshawa, one from Hamilton and two from Ottawa have been recorded.—H. L.

Mergus americanus. MERGANSER.—During August, 1916, a family of Mergansers regularly swam past my cottage, in the Narrows of Lake Joseph, Muskoka. On the tenth I made a careful count and found one adult female in charge of thirty-one young, one of which was noticeably smaller than the others. The flock usually passed only a few yards from the house but there was only the one old bird.—J. H. F.

This is corroborated although the bird may have been a Red-breasted Merganser by the following note. On July 5, 1909, as I came into Lake Obabika from Wakimika Creek, Temagami Forest Reserve, Ontario, a Merganser swam out ahead of me and she was the proud possessor of thirty-seven ducklings.—H. L.

Mergus serrator. RED-BREASTED MERGANSER.—A female taken near West Hill, Ontario, from a small flock, on May 9, 1916, is the latest spring record for the Toronto district. West Hill is about 8 miles east of Toronto.—H. L.

Marila affinis. LESSER SCAUP DUCK.—The latest Toronto date is October 29, 1895. On November 21, 1913, I took a male at Lake Scugog about sixty miles north-east of Toronto.—H. L.

Marila collaris. RING-NECKED DUCK.—On November 5, 1918, Mr. C. A. H. Clark shot one in the plumage of the female over our decoys at Honey Harbor, Muskoka District, Ontario.—H. L.

Oidemia deglandi. WHITE-WINGED SCOTER.—I examined an adult male at Toronto May 14, 1913, and saw a large flock at the mouth of the Niagara River on May 18, 1914. Mr. J. Hughes Samuel noted in his diary in 1897 large flocks seen May 26, one bird on June 3, and from

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[1]. Fleming, Auk XXX, p. 225.

November 20 to December 15, on Toronto Bay. Mr. Lloyd has a young male taken on Lake Ontario October 20, 1904, and he saw one which had just been killed at Scarboro Heights, Toronto, on November 11, 1916.—J. H. F.

Oidemia perspicillata. SURF SCOTER.—A female was taken on Lake Ontario near Toronto on September 27, 1907.—H. L.

Chen hyperboreus hyperboreus. SNOW GOOSE.—An adult taken at Weller's Bay, Prince Edward County, on Lake Ontario, October 21, 1916, is now in the Provincial Museum, Toronto.—J. H. F.

Chen cærulescens. BLUE GOOSE.—An adult female shot on November 2nd, 1914, at Port Rowan on Lake Erie is in the collection of Mr. John Maughan. An immature female was shot by Mr. Bert Gardner at Point Pelee on October 21st, 1916, the upper and lower mandibles of this specimen were black becoming flesh purple at base, commissure dusky black; legs and feet dark lead gray (plumbeous), webs dusky. Another immature bird was taken on the Holland River near Schomberg, in York County, on November 6th, 1916. The bird was in poor condition and had probably been previously wounded. This and the other immature bird were in dark gray plumage.—J. H. F.

Olor columbianus. WHISTLING SWAN.—A flock of about twenty settled in Ashbridge's Bay, Toronto, on the evening of April 17th, 1914, leaving next morning. One was killed at Whitby, thirty miles east of Toronto, on Lake Ontario on the 18th.—J. H. F.

Herodias egretta. EGRET.—A bird, without dorsal plumes, was killed on August 3rd, 1916, in Dundas County, Ontario, and identified by Mr. Oliver Spanner. It was subsequently mounted by a local taxidermist, but I have been unable to learn who owns it at present.—J. H.F.

Rallus elegans. KING RAIL.—One taken at Picton, Bay of Quinte, on March 28, 1917, is in the Provincial Museum, Toronto.—H. L.

Rallus virginianus. VIRGINIA RAIL.—One taken on November 10, 1906, at Toronto, is in my collection. This is the latest record.—J. H. F.

Porzana carolina. SORA RAIL.—Specimens taken on October 12, 1904; October 15, 1914; and October 17, 1914, are late Toronto dates.—H. L.

Calidris leucophæa. SANDERLING.—A specimen was taken at Toronto on September 15, 1905, a late fall date.—H. L.

Limosa hæmastica. HUDSONIAN GODWIT.—One was shot on September 18th, 1912, on the Eastern Sandbar, Ashbridge's Bay, Toronto, by Mr. H. M. Sheppard. The bird was flying in company with nine Golden Plover, some of which were taken at the same time. The record is based on a letter written by the late S. T. Wood, who published an account of the occurrence in the 'Globe' of October 12th, 1912.—J. H. F.

Helodromas solitarius solitarius. SOLITARY SANDPIPER.—Spring occurrences are rare in Ontario. On May 16, 1918, three were seen at Coldstream, Ontario, and one taken; and on May 23, 1918, two were tak-

en at Toronto. The latest fall date recorded for Toronto is September 16, 1891. Later specimens have been taken at Toronto as follows: Sept. 15, 1917; Sept. 30, 1916, and October 2, 1907.—H. L.

Accipiter cooperi. COOPER'S HAWK.—Winter and spring records are unusual in the Toronto region. One was taken on December 6th, 1890, at Toronto; one on January 23rd, 1915, at Oakville, 19 miles west of Toronto; one on February 8th, 1907, at Newmarket, 34 miles north of Toronto; one at Toronto, on March 8th, 1913; all immature birds. A full plumaged adult male was taken on April 30, 1914; and another adult on April 6th, 1918, at Toronto.—J. H. F.

Aquila chrysaetos. GOLDEN EAGLE.—One was taken alive at Palgrave, in Peel County, on November 1 th, 1915, and sent to Toronto. Palgrave is about 32 miles north-west of Toronto.—J. H. F.

Haliæetus leucocephalus alascanus. NORTHERN BALD EAGLE.—An adult male Bald Eagle was shot at Scarboro Bluffs, Toronto, on January 26, 1918. The bird was in poor condition from starvation. January was an exceptionally cold month, with a heavy fall of snow.—H. L.

Pandion haliaetus carolinensis. OSPREY.—One shot on April 16, 1904, at Toronto Island is an early record, and two taken on September 10, 1913, and October 11, 1915, respectively, are late records.—H. L.

Asio wilsonianus. LONG-EARED OWL.—Late Toronto dates are: November 10, 1917; November 11, 1918; November 14, 1914; November 18, 1916; and December 19, 1914.—H. L.

Bubo virginianus. HORNED OWL.—The senior author has already recorded a migration of Horned Owls into Southern Ontario that occurred during the winter of 1907–'08,[1] and though much the largest up to that time, it was insignificant compared with the movement that took place between the last week of October, 1917, and the end of January, 1918. The resident form *Bubo virginianus virginianus* seems to have had warning, and moved out ahead of the rush from the north; the last one was examined on October 22nd and the local bird did not reappear till towards the end of the following January after the last of the invaders had gone home or been killed. The only exception noted was a typical resident bird taken on December 25. The first non-resident bird appeared on the 27th of October and by the second week of November the movement had assumed large proportions, commencing to slow up early in December, and had virtually ceased by the middle of that month, though a few loiterers continued to be taken up to the third week of January and a dark male referred to *subarcticus*, was taken on March 16th, 1918. In all, about one hundred and twenty-five Horned Owls were examined, of these, quite one hundred were taken in the immediate vicinity of Toronto, and the others within a radius of sixty miles. The owls were in good condition, some had obviously eaten skunk, some had eaten cottontails and muskrats, and a few had eaten mice, but the majority found poultry the easiest food,

[1] Auk, 1908, p. 487.

and from what was learned, there must have been serious losses of pure bred stock, besides the large number of ordinary fowls destroyed; at least the owls had managed to keep fat, during one of the coldest winters known in Southern Ontario.

Believing the owls had probably not arrived in one flight, fifty-three were gathered together in the workshops of Mr. Oliver Spanner, from among those taken before the middle of December; and on sorting them some support for this theory was found. There were twenty seven Arctic Horned Owls, *Bubo virginianus subarcticus*, representing both the light and dark phases; ten were referred to the Labrador Horned Owl, *Bubo virginianus heterocnemis*, some of them very dark; of the remainder fifteen were difficult to place, the majority were darker than the Great Horned Owl, *Bubo virginianus virginianus*, usually resident here, and possibly some were colour phases of the Labrador bird. An owl taken on October 22nd belonged to the resident type. The remaining one taken at Toronto on November 12th was perhaps the most interesting; it was light but with much more ochraceus, than any of the Arctic Horned Owls with which it was compared and approached closely a skin of *Bubo virginianus occidentalis*, Stone, from North Dakota, from which it differed, in having less ochraceus at the base of the feathers, and darker edgings to the feathers of the breast and back. The first Arctic Horned Owls were taken on October 27th, but the migration was not in full swing till the middle of November, when birds dark enough to be assigned to the Labrador Horned Owl began to come with the lighter coloured ones, and after that the two were mixed together in the same territory. Though it was impossible to asign any route for the migration, it is likely the owls, on reaching the north shore of Lake Ontario, drifted east. The information about the food conditions is largely due to the interest taken in the matter by Mr. H. M. Sheppard, who skinned and mounted many of the owls. —J. H. F.

Chordeiles virginianus virginianus. NIGHTHAWK.—One was seen on September 30, 1918, and four on October 10, 1918, at Toronto. The last ones were observed at close range for some time.—H. L.

Archilochus colubris. RUBY-THROATED HUMMINGBIRD.—It is not always easy to tell when the adult Hummingbirds leave Ontario. On July 5th, 1911, after one of the hottest weeks ever recorded in Southern Ontario, the adult male Ruby-throats began to pass through my garden in Toronto, and from then until the 18th, at least one was seen every day. In 1914, I saw adult males in the garden from July 8th to 10th, when they disappeared, and no more Hummingbirds were seen till white throated birds appeared on the 26th, and were present every day till August 9th, but it was impossible to tell if there were any old females among them. At Lake Joseph, Muskoka, I met with a family party consisting of the old brds and two fully fledged young on August 17th, 1917, which would indicate that the old birds do not all leave in July.—J. H. F.

Tyrannus tyrannus. KINGBIRD.—One was taken at Rosebank, Ontario, which is 18 miles east of Toronto, on May 10, 1915. This is an early date for the Toronto district.—H. L.

Sayornis phœbe. PHŒBE.—The latest Toronto date is November 3, 1917, when a specimen was taken.—H. L.

Nuttallornis borealis. OLIVE-SIDED FLYCATCHER.—Near Toronto, on August 17, 1918, a female was secured. The only other specimen, other than spring migrants, which has been procured at Toronto, was taken August 9, 1899.[1] Two spring migrants were seen this year, 1918, on May 27th and one on June 8th.

Empidonax flaviventris. YELLOW-BELLIED FLYCATCHER.—On September 14, 1918, these flycatchers were fairly common in a small ravine of the Don Valley, near Toronto. They were difficult to observe, but five were recorded. The identification was confirmed by specimens.—H. L.

Empidonax trailli alnorum. ALDER FLYCATCHER.—In dense willows, on the Scarboro cliffs, near Toronto, two of these birds were taken in midsummer, one a male, on July 18, 1905, and the other on August 4, 1905. This flycatcher has not previously been recorded in summer and the last bird taken was uttering the characteristic note of the species.—H. L.

Empidonax minimus. LEAST FLYCATCHER.—A new, early Toronto date is May 6, 1905; and a new late date August 31, 1918. Both are confirmed by specimens.—H. L.

Otocoris alpestris praticola. PRAIRIE HORNED LARK.—Four Horned Larks were taken from a large flock on November 24, 1917, all males. They were submitted to Dr. H. C. Oberholser, for examination, and his identification, which is of interest, is quoted below:

"They prove to be of considerable interest, and a word or two concerning them may be desirable. Three of them are nearly typical *Otocoris alpestris praticola*, although they have rather bright yellow throats. The fourth specimen is much more brownish on the upper parts and seems to be more or less intermediate between *Otocoris alpestris praticola* and *Otocoris alpestris hoyti*, with possibly a strain of *Otocoris alpestris alpestris* in rather yellowish eyebrow. The bird is, however, altogether too small for either *Otocoris alpestris alpestris* or *Otocoris alpestris hoyti*."

Corvus brachyrhynchos brachyrhynchos. CROW.—Two albino Crows were taken from the nest by Mr. Ernest Dunn on June 29, 1908, at a spot nine miles north of Toronto. Both birds were grayish white, the eyes blue-gray; the feet lead-black; and the beaks horn colour.—J. H. F.

Sturnella magna magna. MEADOWLARK.—I saw a flock of these birds that numbered between twenty and thirty, on January 14, 1913,

[1] Auk, XXIV, 1907, 77.

near Glenwilliams, in Halton County. It is not unusual to have one or two wintering about the farm buildings, but a flock of any size is rare. —J. H. F.

Euphagus carolinus. RUSTY BLACKBIRD.—One was taken from a flock on March 30, 1904, which is an early Toronto record, and one taken on November 5, 1904, is late.—H. L.

Hesperiphona vespertina vespertina. EVENING GROSBEAK.—A flock was reported at Glenwilliams, in Halton County, on April 3, 1913, and on December 27, I examined two males that had been taken at Toronto. Two more males were taken at Oshawa, thirty-eight miles east of Toronto, on March 22, 1914. The late S. T. Wood saw a flock at East Toronto on February 18, 1915.—J. H. F.

Pinicola enucleator leucura. PINE GROSBEAK.—An early fall date for Toronto is October 24, 1903, when a male was taken.—H. L.

Loxia leucoptera. WHITE-WINGED CROSSBILL.—These birds were abundant, in flocks, at Sutton, Ontario, on the South Shore of Lake Simcoe, on November 5, 1915. An early fall date for Toronto was November 16, 1917, when one was taken.—H. L.

Zonotrichia albicollis. WHITE-THROATED SPARROW.—Late Toronto dates are October 26, 1918, and October 31, 1914.—H. L.

Melospiza georgiana. SWAMP SPARROW.—A late Toronto date is October 20, 1917, when a specimen was taken.—H. L.

Cardinalis cardinalis cardinalis. CARDINAL.—A male was taken on December 3, 1917, near the Humber River, Toronto, and afterwards examined by me.—J. H. F.

Zamelodia ludoviciana. ROSE-BREASTED GROSBEAK.—Fall records are rare. A male was taken at Toronto on August 19, 1913, and a female on September 18, 1915.—H. L.

Passerina cyanea. INDIGO BUNTING.—Additional Toronto fall dates are August 12, 1916, and September 3, 1917.—H. L.

Piranga erythromelas. SCARLET TANAGER.—There were more Tanagers than usual in my garden at Toronto, during September, 1913; on the 14th I took an adult male, on the 18th I saw two, one of which had the black wings of the male; one was seen on the 19th and one on the 20th; two seen on the 22nd one of which proved to be a female; the last seen on the 27th.—J. H. F.

Progne subis subis. PURPLE MARTIN.—The earliest Toronto date is given as April 18th. On April 6, 1904, about 5 p. m. a male came to my bird-house in Toronto, leaving immediately. This, or another, a male, came to the house on April 10th of the same year and remained perched on the house for some time.—H. L.

Stelgidopteryx serripennis. ROUGH-WINGED SWALLOW.—At West Hill, Ontario, about 8 miles East of Toronto City limits, and not far from the shore of Lake Ontario, I found two adult and four young of this species on July 20, 1918. The young birds were flying well at that date. This

extends the range of this species eastward a few miles more on the north shore of Lake Ontario.[1] Specimens were taken, which proved the identity of the species. As it is understood specimens were taken on the Rideau River, during the summer of 1918, a general extension of range may be occurring.—H. L.

Vireosylva philadelphica. PHILADELPHIA VIREO.—The latest spring date is June 2, 1917, when a female was taken at Toronto. They were common on the morning of May 22, 1918, when at least twelve were seen in a section of the Don Valley and several were taken.—H. L.

Vermivora rubricapilla rubricapilla. NASHVILLE WARBLER.—The earliest spring date is April 29, 1905, when a male was taken at Toronto. The latest fall date is September 28, 1918, when another was secured.

Vermivora peregrina. TENNESSEE WARBLER.—The latest spring date recorded for Toronto is May 22. One was seen on May 31, 1917, and a female taken on June 7, 1907. Early fall records are, an immature bird taken on August 17, 1914, and one taken on September 9, 1913.—H. L.

Dendroica tigrina. CAPE MAY WARBLER.—A male seen on May 31, 1917, at Toronto, is the latest spring record. A moulting male, taken on August 22, 1908, and one seen at Toronto Island, on August 23, 1915, are early fall records. In 1913, Cape May Warblers were passing through my garden, at Toronto, from September 12 to 21.—J. H. L.

Dendroica coronata. MYRTLE WARBLER.—The earliest spring record for Toronto is a female, taken on April 23, 1904.—H. L.

Dendroica magnolia. MAGNOLIA WARBLER.—The latest spring record for Toronto is a male taken on June 6, 1907, and the latest fall record is a female taken on October 16, 1915.—H. L.

Dendroica cerulea. CERULEAN WARBLER.—On May 23, 1918, I took a female Cerulean Warbler near Toronto. I was watching another warbler, which I considered to be a Parula Warbler, when it pursued a plainer bird across a stream. I followed and took the plainer one of the two, which proved to be a Cerulean Warbler. I concluded at once that the pursuing bird had been a male of the same species but did not see it again. There are seven or eight previous Toronto records at least one of which is a female taken in 1856.[1]—H. L.

Dendroica castanea. BAY-BREASTED WARBLER.—This is one of the warblers that has increased as a migrant at Toronto, within the last twenty years. The first record of the bird being in any numbers, is in the diary of the late J. Hughes Samuel under date of May 19th, 1898, at Toronto Island. "Bay-breasted Warblers were astonishingly numerous, —so much so that I counted twelve feeding on the ground at one time and in a space of a few feet." This warbler breeds in Nipissing District, as

[1] Auk, XXXIV, 460.
[1] Auk, XXIV, 1907, 84.

a breeding pair was taken on July 11th, 1906, at Annina, Nipissing (near Latchford) by Mr. W. B. Rubridge. Of late years it has become a fairly common and regular migrant, during August and September at Toronto, though in 1907, there was only one to record, and we have young birds taken there between August 13th and September 9th, and one from Lake Joseph, Muskoka, on September 17th, 1907. We have adults from Toronto in full moult taken between August 10th and 29th; and adult males taken on August 17, 1918, September 2, 1918, September 2nd, 1908, and September 30th, 1907, and one adult female taken September 22, 1917.

Dendroica striata. BLACK-POLL WARBLER.—The latest spring date for Toronto is a female taken on June 7, 1907.—H. L.

Dendroica fusca. BLACKBURNIAN WARBLER.—The latest Toronto spring dates are a female taken on June 7, 1907, and a male taken on June 8, 1907.—H. L.

Dendroica vigorsi. PINE WARBLER.—The latest spring date for the Toronto district is a male, taken at Etobicoke Creek, by Mr. Osborne H. Shenstone on May 31, 1902.—H. L.

Seiurus aurocapillus. OVEN-BIRD.—The latest fall dates for Toronto are a female taken on September 28, 1918, and another taken on October 2, 1908.—H. L.

Icteria virens virens. YELLOW-BREASTED CHAT.—A female was taken at Coldstream, Middlesex County, Ontario, on May 14, 1918.—H. L.

Wilsonia pusilla pusilla. WILSON'S WARBLER.—The earliest spring record for Toronto is a male taken on May 10, 1904.—H. L.

Wilsonia canadensis. CANADIAN WARBLER.—This species has not yet been recorded as breeding at Toronto. The birds were found on four different occasions in June, one in July, and three in August in the same section of the Don Valley during the summer of 1918.—H. L.

Toxostoma rufum. BROWN THRASHER.—A female taken on October 8, 1917, is the latest fall date for Toronto.—H. L.

Thryothorus ludovicianus ludovicianus. CAROLINA WREN.—The first Toronto record was taken in my garden on May 20, 1917, a male in worn plumage.—J. H. F.

Sitta canadensis. RED-BREASTED NUTHATCH.—A male was taken at Toronto on May 20, 1916. This is the latest spring date.—H. L.

Regulus calendula calendula. RUBY-CROWNED KINGLET.—Specimens were taken at Toronto on August 31, 1918, September 19, 1916, and September 21, 1908, which are all earlier than recorded fall dates.—H. L.

Polioptila cærulea cærulea. BLUE-GRAY GNATCATCHER.—A female was taken at Coldstream, Middlesex County, Ontario, on May 14, 1918.—H. L.

Planesticus migratorius migratorius. ROBIN.—Late fall and winter dates are November 3, 1917, November 24, 1917, and December 10,

1904. Between August 28 and September 7, 1918, Mr, Robert Moorcroft obtained four, which had been killed or wounded by wires, at the same street corner. He saw many others, during the same few days, and says he has found dead or wounded Robins, at the same place, for some time past. The stomachs were empty in each case, so that the birds are evidently killed during the night or before feeding in the morning. A few high wires pass over a small wooded park at this corner but no definite reason can be given for high Robin mortality at this point.—H. L.

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SEVENTEENTH SUPPLEMENT TO THE AMERICAN ORNITHOLOGISTS' UNION CHECK-LIST OF NORTH AMERICAN BIRDS.

The Sixteenth Supplement, the only one since the appearance of the Third (1910) Edition of the American Ornithologists' Union 'Check-List of North American Birds,' was published in July, 1912. Since that time it has for various reasons not been expedient to publish further decisions. The Committee on Nomenclature, since its reorganization at the A. O. U. meeting in November, 1919, has decided to begin the preparation of a new A. O. U. 'Check-List'. This is undertaken as part of the cooperation between the British Ornithologists' Union and the American Ornithologists' Union in the production of a series of lists of the birds of the several zoogeographical regions of the world, and will probably be issued as the Nearctic volume of the proposed 'Systema Avium.'

Since the publication of the last A. O. U. 'Check-List' the great activity among American ornithologists has resulted in an almost unbelievable number—several hundreds—of additions and changes most of which have been listed from time to time in 'The Auk' and will have the consideration of the A. O. U. Committee. As fast as these cases are disposed of, it is planned to publish the decisions in supplements to the 'Check-List,' in order that those who have occasion to use the names of North American birds may have the benefit of the opinions of the Committee.

The present supplement is made up almost wholly of purely nomenclatural changes and represents a considerable portion of such cases now pending. The number of additions and changes here treated is 32; of rejections, 35.

Committee { WITMER STONE, *Chairman*
HARRY C. OBERHOLSER, *Secretary*
JONATHAN DWIGHT
T. S. PALMER
CHARLES W. RICHMOND

ADDITIONS AND CHANGES OF NOMENCLATURE.

Megalestris Bonaparte becomes **Catharacta** Brünnich (Ornith. Boreal., 1764, p. 32), because the latter has for its type, by subsequent designation of Reichenbach 1851, *Catharacta skua* Brünnich, and, furthermore, is not preoccupied by *Catarractes* Brisson, a word of different classical ending. (*Cf.* Mathews, Novit. Zool., XVII, No. 3, Dec. 15, 1910, p. 498; Oberholser, 'The Auk,' XXXVI, No. 3, July, 1919, p. 418.) The only North American species is

35. **Catharacta skua** Brünnich.

Subgenus **Thalasseus** Boie becomes **Hydroprogne** Kaup (Skiz. Entw.-Gesch. Nat. Syst. Eur. Thierw., 1829, p. 91; type by subsequent designation [Gray, Genera Birds, III, 1846, p. 658], *Sterna caspia* Pallas), because the type of *Thalasseus* is *Sterna sandvicensis* Latham, and *Hydroprogne* Kaup is the earliest available name for the present group. (*Cf.* Mathews, Novit. Zool., XVII, No. 3, Dec. 15, 1910, pp. 497–498.)

Subgenus **Actochelidon** Kaup becomes **Thalasseus** Boie, because the type of *Thalasseus* proves to be, by designation of Gray (List Gen. Birds, 1840, p. 79) (*cf.* Stone, Science, N. S., XXVI, No. 666, Oct. 4, 1907, p. 445; Mathews, Novit. Zool., XVII, No. 3, Dec. 15, 1910, pp. 497–498), *Sterna cantiaca* Gmelin (= *Sterna sandvicensis* Latham), which designation the previous action of Kaup in proposing *Actochelidon* with the same species as type does not nullify.

Hydrochelidon Boie becomes **Chlidonias** Rafinesque (Kentucky Gazette, I, No. 8, Feb. 21, 1822, p. 3, col. 5; type by monotopy, *Chlidonias melanops* Rafinesque (= *Sterna surinamensis* Gmelin) (*cf.* Rhoads, 'The Auk,' XXIX, No. 2, April, 1912, pp. 197–198), because the latter name has priority. The North American forms of this genus are:

77. **Chlidonias nigra surinamensis** (Gmelin).
78. **Chlidonias leucoptera leucoptera** (Temminck).

Thalassidroma Vigors becomes **Hydrobates** Boie (Isis, 1822, col. 562; type, by subsequent designation [Gray, List Genera Birds, 1840, p. 78], *Procellaria pelagica* Linnaeus), because the latter name is of earlier date, and is not invalidated by *Hydrobata* Vieillot, a word with a different classical ending. (*Cf.* Hartert, Hand-List British Birds, 1912, p. 149.) The only North American species is:

104. **Hydrobates pelagicus** (Linnaeus).

Aestrelata Bonaparte becomes **Pterodroma** Bonaparte (Compt. Rend. Ac. Sci., XLII, May, 1856, p. 768; type by subsequent designation [Salvin, Cat. Birds Brit. Mus., XXV, 1896, p. 397], *Procellaria macroptera* Smith), because the earliest place of publication of both *Aestrelata* and *Pterodroma* proves to be Comptes Rendus, XLII, May, 1856, p. 768, and here *Pterodroma* has anteriority. (*Cf.* Mathews, Birds Australia, II, pt. 2, July 31, 1912, p. 131.)

Sula cyanops Sundevall becomes **Sula dactylatra** Lesson (Voyage Coquille, I, April, 1829, p. 494; Ascension Island). (*Cf.* Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, pp. 9–10.) While *Sula dactylatra* is not with certainty determinable at the original place of publication in the 'Voyage of the Coquille,' Lesson himself soon afterward (Traité d'Ornith., 1831, p. 601) made its identity certain. It should, however, date from its first introduction.

Moris Leach, Syst. Cat. Spec. Indig. Mamm. and Birds Brit. Mus., after August, 1816, p. 35 (type by monotopy, *Moris bassana* [= *Pelecanus bassanus* Linnaeus]). Recognized as a genus, and adopted because considered neither a nomen nudum, nor preoccupied by *Morum* Bolten, although *Morus* Vieillot, also proposed for the gannets, having a termination differing merely in grammatical gender from *Morum* Bolten, is thereby invalidated. The name *Sulita* Mathews (Austral-Avian Record, II, No. 7, Jan. 28, 1915, p. 123; type by original designation and monotypy, *Pelecanus bassanus* Linnaeus), proposed in place of *Moris* and *Morus*, becomes now also a synonym of *Moris* Leach. (*Cf.* Oberholser, 'The Auk,' XXXVI, No. 3, July, 1919, p. 417.) The only North American species of this group will therefore now stand as

117. **Moris bassana** (Linnaeus).

Ibididae becomes **Threskiornithidae,** because the type of the genus *Ibis* proves to be a stork, *Tantalus ibis* Linnaeus; and the proper name for the genus *Ibis*, the type genus of the family, now becomes *Threskiornis* Gray. (*Cf.* Mathews, 'The Auk,' XXX, No. 1, January, 1913, p. 95; Richmond, Proc. U. S. Nat. Mus., LIII, August 16, 1917, pp. 580, 636.)

Herodias Boie becomes **Casmerodius** Gloger (Gemein. Hand-und Hilfsb. Naturg., 1842, p. 412; type by subsequent designation [Sharpe, Cat. Birds Brit. Mus., XXVI, 1898, p. 88], *Ardea egretta* Gmelin), because the type of *Herodias* Boie is, by subsequent designation (Gray, List Gen. Birds, ed. 2, 1841, p. 86) *Ardea garzetta* Gmelin

(*cf.* Stone, Science, N. S., XXVI, No. 666, Oct. 4, 1907, p. 445), making *Herodias* thus a synonym of *Egretta* Forster. The earliest available name for the present genus is therefore *Casmerodius* Gloger. The only North American species is

196. **Casmerodius egretta** (Gmelin).

Clangula Oken becomes **Glaucionetta** Stejneger (Proc. U. S. Nat. Mus., VIII, Oct. 9, 1884, p. 409; type by original designation, *Anas clangula* Linnaeus), since *Clangula* Oken proves to be a nomen nudum (*cf.* Committee British Ornithologists' Union, List Brit. Birds, 1915, p. 384); *Glaucion* Kaup to be preoccupied by *Glaucion* Oken (Mollusca, 1816); and *Bucephala* Baird to be invalidated by *Bucephalus* Baer (Vermes, 1827). The North American forms are:

151. **Glaucionetta clangula americana** (Bonaparte).

152. **Glaucionetta islandica** (Gmelin).

Harelda Stephens becomes **Clangula** Leach (in Ross' Voyage Disc., 1819, append., p. xlviii; type by monotypy, *Anas hyemalis* Linnaeus), as this is the oldest tenable name for the genus. (*Cf.* Hartert, Hand-List Brit. Birds, 1912, p. 142.) The employment of *Clangula* Leach in the above sense now proves necessary since it was based exclusively on the Old-squaw, and since *Clangula* Oken (Isis, I, 1817, col. 1183), along with the other Oken generic names published in the same connection, are considered nomina nuda because not definitely referring to Cuvier's groups. (*Cf.* Committee British Ornithologists' Union, List Brit. Birds, 1915, p. 384.) The only species of this genus will now stand as

154. **Clangula hyemalis** (Linnaeus).

Scolopacinae is recognized as a subfamily of **Scolopacidae,** to include Nos. 227 to 230.1 of the A. O. U. Check-List. (*Cf.* Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VIII, 1919, pp. 145–146.)

Macrorhamphus Forster becomes **Limnodromus** Wied (Beitr. Naturg. Brasil, IV, Abth. 2, 1833, p. 716; type, by monotopy, *Scolopax grisea* Gmelin), because *Macrorhamphus* Forster 1817 is preoccupied by *Macrorhamphus* Fischer 1813, and *Limnodromus* becomes the earliest available name. (*Cf.* Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, p. 22.) The North American forms of the genus are:

231. **Limnodromus griseus griseus** (Gmelin).

232. **Limnodromus griseus scolopaceus** (Say).

Eroliinae is recognized as a subfamily of **Scolopacidae,** to include Nos. 231 to 252, 260, and 262, of the A. O. U. Check-List (*cf.* Lowe, Ibis, 10th ser., III, No. 3, July, 1915, pp. 609–616; Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VIII, 1919, pp. 146–147); but becomes **Canutinae,** because *Canutus* [anonymous], not *Erolia* Vieillot, is the type genus of this subfamily. (*Cf.* Oberholser, Proc. Biol. Soc. Wash., XXXII, Dec. 31, 1919, p. 200.)

Pisobia aurita (Latham) becomes **Pisobia acuminata** (Horsfield) (*Totanus acuminatus* Horsfield, Trans. Linn. Soc. Lond., XIII, May,

1821, p. 192; Java), because *Tringa aurita* Latham proves to have been based on a drawing of *Actitis hypoleuca* (Linnaeus). (*Cf.* Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, p. 7.)

Calidris Illiger becomes **Crocethia** Billberg (Synop. Faunae Scand., I, pars 2, 1828, tab. A; p. 132; type, *Tringa arenaria* Linnaeus), because *Calidris* Illiger is preoccupied by *Calidris* [anonymous] 1804. (*Cf.* Richmond, Proc. U. S. Nat. Mus., LIII, Aug. 16, 1917, p. 581; Mathews and Iredale, Austral Avian Record, III, No. 5, Dec. 28, 1917, p. 114.) The only species:

Calidris leucophaea (Pallas) becomes **Crocethia alba** (Pallas) (*Trynga alba* Pallas, in Vroeg, Cat. Col. Oiseaux, Oct. 6, 1764, p. 7; coast of North Sea), by reason of the change of the generic name *Calidris* to *Crocethia* (*cf. supra*), and the rejection of *Tringa leucophaea* "Pallas" as non-binomial. (*Cf.* Stone, 'The Auk,' XXIX, No. 2, April, 1912, p. 208.)

Tringinae is recognized as a subfamily of Scolopacidae, to include Nos. 253 to 259, 261, 263, and 264 to 268 of the A. O. U. Check-List (*cf.* Lowe, Ibis, 10th ser., III, No. 3, July, 1915, pp. 609–616; Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VIII, 1919, pp. 147–149); but becomes **Numeniinae,** because *Numenius* Brisson, not *Tringa* Linnaeus, is the type genus of this subfamily. (*Cf.* Oberholser, Proc. Biol. Soc. Wash., XXXII, Dec. 31, 1919, p. 200.)

Helodromas Kaup becomes **Tringa** Linnaeus, because the type of *Tringa* Linnaeus is, by tautonymy, *Tringa ocrophus* Linnaeus. (*Cf.* Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, pp. 5–6.) The North American forms will therefore now stand as follows:

256. **Tringa solitaria solitaria** Wilson.

256a. **Tringa solitaria cinnamomea** (Brewster).

257. **Tringa ocrophus** Linnaeus.

Heteractitis Stejneger becomes **Heteroscelus** Baird (Rep. Explor. and Surv. R. R. Pac., IX, 1858, p. 734; type by monotypy, *Totanus brevipes* Vieillot); since *Heteroscelus* Baird 1858 is not invalidated by *Heteroscelis* Latreille 1825. (*Cf.* Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, p. 5; Oberholser, 'The Auk,' XXXVI, No. 2, April, 1919, pp. 278–279.) The North American species will therefore stand as

259. **Heteroscelus incanus** (Gmelin).

Charadrius Linnaeus becomes **Pluvialis** Brisson (Ornith., V, 1760, p. 42; type by tautonymy, *Charadrius apricarius* Linnaeus), because *Charadrius* Linnaeus proves to apply to the genus known as *Aegialitis* (*cf.* Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, pp. 5–6), and *Pluvialis* Brisson is the earliest tenable name for the Golden Plovers. The North American forms are:

271. **Pluvialis apricaria** (Linnaeus).

272. **Pluvialis dominica dominica** (Müller).

272a. **Pluvialis dominica fulva** (Gmelin).

Aegialitis Boie becomes **Charadrius** Linnaeus, because the type of *Charadrius* Linnaeus is, by tautonymy, *Charadrius hiaticula* Linnaeus. (*Cf.* Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, pp. 5–6.) The North American species are:

274. **Charadrius semipalmatus** Bonaparte.
275. **Charadrius hiaticula** Linnaeus.
276. **Charadrius dubius** Scopoli.
277. **Charadrius melodus** Ord.
278. **Charadrius nivosus** (Cassin).
279. **Charadrius mongolus** Pallas.

Chaemepelia passerina terrestris (Chapman) becomes **Chaemepelia passerina passerina** (Linnaeus) (*Columba passerina* Linnaeus, Syst. Nat., ed. 10, I, 1758, p. 165; "America inter tropicos"), because Bonaparte in 1855 was the first author to fix the type locality of *Columba passerina* Linnaeus, and he restricted it to North America. (*Cf.* Todd, Annals Carnegie Mus., VIII, 1913, p. 533.)

Catharista Vieillot becomes **Coragyps** Geoffroy (Le Maout, Hist. Nat. Oiseaux, 1853, p. 66; type, *Vultur urubu* Vieillot), because the type of the former proves to be *Vultur aura* Linnaeus, and *Coragyps* Geoffroy is therefore the earliest tenable generic name for the Black Vulture. (*Cf.* Stone, Princeton Patag. Exped., II, pt. IV, 1915, p. 540; Chubb, Birds Brit. Guiana, I, 1916, p. 208.) The only North American form is

326. **Coragyps urubu urubu** (Vieillot).

Aluco Fleming becomes **Tyto** Billberg (Synop. Faunae Scand., I, pars 2, 1828, tab. A; new name for *Strix* Savigny; type, *Strix alba* Scopoli), because *Aluco* Fleming 1822 is preoccupied by *Aluco* Link 1807; and because *Tyto* Billberg, not being invalidated by *Tyta* Billberg 1820, a word of different classical termination, is the earliest available name. (*Cf.* Mathews, Novit. Zool., XVII, No. 3, Dec. 15, 1910, p. 500.)

Oreospiza Ridgway becomes **Oberholseria** Richmond (Proc. Biol. Soc. Wash., XXVIII, Nov. 29, 1915, p. 180; type by original designation, *Fringilla chlorura* Audubon), because *Oreospiza* Ridgway 1896 is preoccupied by *Oreospiza* Keitel 1857, and *Oberholseria* is proposed in its place. (*Cf.* Richmond, *loc. cit.*) The only species is

592. 1. **Oberholseria chlorura** (Audubon).

Mniotiltidae becomes **Compsothlypidae,** because **Compsothlypis** Cabanis, not *Mniotilta* Vieillot, is the type genus of the family. (*Cf.* Oberholser, Proc. Biol. Soc. Wash., XXXII, April 11, 1919, p. 46.)

Helinaia Audubon becomes **Limnothlypis** Stone (Science, N. S., XL, No. 1018, July 3, 1914, p. 26; type by original designation and monotypy, *Sylvia swainsonii* Audubon), because the type of *Helinaia* Audubon is, by subsequent designation (Gray, List Gen. Birds, ed. 2, 1841, p. 33), *Motacilla vermivora* Gmelin, which makes *Helinaia* a synonym of *Helmitheros* Rafinesque. (*Cf.* Stone, *loc. cit.*; and Rich-

mond, Proc. U. S. Nat. Mus., LIII, Aug. 16, 1917, p. 598.) The only species is

638. **Limnothlypis swainsonii** (Audubon).

Vermivora rubricapilla (Wilson) becomes **Vermivora ruficapilla** (Wilson) (*Sylvia ruficapilla* Wilson, Amer. Ornith., III, 1811, p. 120, pl. XXVII, fig. 3; near Nashville, Tenn.), because the latter is not preoccupied by *Sylvia ruficapilla* Latham 1790, since this is merely a nomenclatural combination—*i. e.*, not an original description. (*Cf.* Cooke, 'The Auk,' XXIX, No. 4, Oct., 1912, p. 545.) The races of this species therefore become

645. **Vermivora ruficapilla ruficapilla** (Wilson).

645a. **Vermivora ruficapilla gutturalis** (Ridgway).

Compsothlypis americana usneae Brewster becomes **Compsothlypis americana pusilla** (Wilson), because *Sylvia pusilla* Latham (Suppl. Ind. Orn., 1801, p. 56), which supposedly preoccupied *Sylvia pusilla* Wilson (Amer. Ornith., IV, 1811, p. 71, pl. 28, fig. 3; eastern Pennsylvania), is only a nomenclatural combination, not an original description, and thus does not invalidate Wilson's name; and the latter, therefore, becomes available for the bird later described as *Compsothlypis americana usneae* Brewster. (*Cf.* Brewster, 'The Auk,' XXXV, No. 2, April, 1918, p. 228.)

Saxicola Bechstein becomes **Oenanthe** Vieillot (Analyse Nouv. Syst. Orn. Élément., 1816, p. 43; type by tautonymy, *Motacilla oenanthe* Linnaeus), because the type of *Saxicola* is, by subsequent designation, *Motacilla rubicola* Linnaeus, a number of the genus *Pratincola* Koch. (*Cf.* Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, p. 20). The North American forms are:

765. **Oenanthe oenanthe oenanthe** (Linnaeus).

765a. **Oenanthe oenanthe leucorhoa** (Gmelin).

CHANGES OF NOMENCLATURE REJECTED.

Colymbus Linnaeus versus **Podiceps** Latham. (*Cf.* Mathews, Novit. Zool., XVII, No. 3, Dec. 15, 1910, pp. 494–495; Mathews and Iredale. Ibis, 1913, pp. 217–218.) Change rejected, because the earliest valid type designation of *Colymbus* Linnaeus is *Colymbus cristatus* Linnaeus, by the Committee of the American Ornithologists' Union (Check-List North Amer. Birds, 1886, p. 73). The designation of *Colymbus arcticus* Linnaeus by Gray (Cat. Gen. and Subgen. Birds, 1855, p. 125) must be regarded as ineffective, since it is specifically stated to refer to Linnaeus at 1735 ("1735 nec 1766"), and therefore cannot be used for the 1758 edition of the 'Systema Naturae.' (*Cf.* Hartert, Brit. Birds, IX, 1915, p. 55.)

Gavia Forster versus **Colymbus** Linnaeus. (*Cf.* Sclater, List Brit. Birds, ed. 2, 1915, pp. 398–399.) Change rejected, because by the

earliest tenable designation (Committee American Ornithologists' Union, Check-List North Amer. Birds, 1886, p. 73) the type of *Colymbus* Linnaeus is determined as *Colymbus cristatus* Linnaeus, and consequently this generic name must be continued in use for the grebes. (*Cf.* Hartert, Brit. Birds, IX, 1915, p. 55.)

Lunda Pallas versus **Ahea** [lege *Alea*] Boddaert. (*Cf.* Mathews, Austral-Avian Record, III, No. 2, Nov. 19, 1915, p. 37.) Change not accepted, because *Alea* is to be regarded as clearly a typographical error for *Alca*.

Pagophila alba (Gunnerus) versus **Pagophila eburnea** (Phipps). (*Cf.* Committee British Ornithologists' Union, List Brit. Birds, ed. 2, 1915, p. 394.) Change rejected, because the original description of *Larus albus* Gunnerus, in Leem's Beskr. Finm. Lapp, 1767, p. 285, is considered recognizably applicable to the Ivory Gull. (*Cf.* Oberholser, Proc. Biol. Soc. Wash., XXXII, Dec. 31, 1919, p. 199.)

Larus hyperboreus Gunnerus versus **Larus glaucus** Brünnich. (*Cf.* Hartert, Hand-List British Birds, 1912, p. 202). Change rejected, because *Larus glaucus* Brünnich 1764 is rendered invalid by the prior *Larus glaucus* Pontoppidan 1763, which was applied to *Larus canus* Linnaeus.

Sterna caspia Pallas versus **Sterna tschegrava** Lepechin. (*Cf.* Hartert, Hand-List British Birds, 1912, p. 192.) Change rejected, because, while *Sterna tschegrava* is sufficiently described, and has anteriority over *Sterna caspia* Pallas, Lepechin is clearly non-binomial in the article (Nov. Com. Acad. Sci. Imp. Petrop., XIV, pt. 1, 1770, p. 500) in which *Sterna tschegrava* is described.

Daption Stephens versus **Petrella** Zimmermann. (*Cf.* Mathews, 'The Auk,' XXXI, No. 1, Jan., 1914, pp. 90–91.) Change rejected, because Zimmermann is not binomial in the publication in question (Bartram, Reisen Nord- und Sud-Karolina, 1793, p. 293), nor is he a binary author accepted by the International Zoological Commission.

Clangula Oken versus **Bucephala** Baird. (*Cf.* Hartert, British Birds, IX, No. 1, June 1, 1915, p. 7.) Change rejected, because *Bucephala* Baird 1858 is preoccupied by *Bucephalus* Baer 1827, a genus of Vermes. Furthermore, the proper name for the genus is *Glaucionetta* Stejneger (*cf. antea*, p. 442).

Clangula Oken versus **Glaucion** Kaup. (*Cf.* Committee British Ornithologists' Union, List Brit. Birds, 1915, p. 384.) Change rejected, because *Glaucion* Kaup 1829 is preoccupied by *Glaucion* Oken, 1816, a genus of Mollusca.

Erismatura Bonaparte versus **Oxyura** Bonaparte. (*Cf.* Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, p. 9.) Change rejected, as *Oxyura* Bonaparte 1828 is considered preoccupied by *Oxyurus* Swainson 1827.

Erismatura Bonaparte versus **Cerconectes** Wagler. (*Cf.* Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, p. 9.) Change rejected,

because, while *Cerconectes* possibly appeared before *Erismatura*, the exact dates of publication are still too indefinitely determinable.

Olor Wagler versus **Cygnus** Zimmermann. (*Cf.* Richmond, Proc. U. S. Nat. Mus., LIII, Aug. 16, 1917, p. 587.) Change rejected, since Zimmermann is here neither binomial nor an accepted binary author.

Himantopus Brisson versus **Hypsibates** Nitzsch. (Cf. Mathews, Novit. Zool., XVIII, No. 1, June 17, 1911, p. 7.) Change rejected, because Brisson's names are held to be valid.

Pisobia maculata (Vieillot) versus **Pisobia pectoralis** (Say). (*Cf.* Mathews, Birds Australia, III, pt. 3, Aug. 18, 1913, p. 261.) Change rejected, because *Tringa maculata* Vieillot is not preoccupied by "*Tringa maculata*" Linnaeus, since there is no such combination in the writings of Linnaeus. (*Cf.* Oberholser, 'The Auk,' XXXV, No. 1, January, 1918, p. 63.)

Tringa ocrophus Linnaeus versus **Tringa ochropus** Linnaeus. (*Cf.* Hartert, British Birds, IX, No. 1, June 1, 1915, p. 9.) Change rejected, on the ground that *Tringa ocrophus* cannot be considered a mere typographical error.

Arenaria Brisson versus **Morinella** Meyer and Wolf. (*Cf.* Mathews, Novit. Zool., XVII, No. 3, Dec. 15, 1910, p. 498.) Change rejected, because Brisson's names are held to be valid.

Chaemepelia Swainson versus **Columbina** Spix. (*Cf.* Allen, Science, N. S., XXXIII, 1911, pp. 336–337.) Change rejected, because the type of *Columbina* Spix was first designated (Gray, List Gen. Birds, 1841, p. 75) as *Columbina strepitans* Spix, which is generically distinct from the species of the genus currently called *Chaemepelia*. (*Cf.* Todd, Annals Carnegie Mus., VIII, 1913, p. 515.)

Falco aesalon Tunstall versus **Falco regulus** Pallas. (*Cf.* Hartert, Hand-List British Birds, 1912, p. 112.) Change rejected, because *Falco aesalon* Tunstall is not a nomen nudum, but a valid name, based on the "Merlin" of Pennant's 'British Zoology' and "l'Emerillon" of Brisson's 'Ornithologie.'

Aluco Fleming versus *Flammea* Fournel. (*Cf.* Mathews, Austral Avian Record, I, No. 4, Sept. 18, 1912, p. 104). Change rejected, because the earlier *Tyto* Billberg is not preoccupied by *Tyta* Billberg, and is therefore the proper name for the Barn Owls.

Cryptoglaux Richmond versus **Aegolius** Kaup. (*Cf.* Hartert, Hand-List British Birds, 1912, p. 105.) Change rejected, on the ground that *Nyctala* Brehm, from whatever date taken, is preoccupied by *Nyctalus* Bowdich 1825; and that *Aegolius* Kaup 1829 is preoccupied by *Aegolia* Billberg 1820. The only tenable name for the genus is therefore *Cryptoglaux* Richmond.

Cryptoglaux funerea richardsoni (Bonaparte) versus **Cryptoglaux tengmalmi richardsoni** (Bonaparte). (*Cf.* Hartert, Hand-List British Birds, 1912, p. 105). Change rejected, because *Strix funerea* Linnaeus refers undoubtedly to this species, notwithstanding the statement that it is of the size of a crow.

Dryobates Boie versus **Dendrocopos** Koch. (*Cf.* Hesse, Ornith. Monatsb., 1911, pp. 160–162.) Change rejected, because *Dendrocopos* Koch, July, 1816, is preoccupied by *Dendrocopus* Vieillot, April, 1816, and therefore the proper name for the present genus is *Dryobates* Boie.

Loxia Linnaeus versus **Crucirostra** Scopoli. (*Cf.* Mathews, Novit. Zool., XVII, No. 3, Dec. 15, 1910, pp. 501–502.) Change rejected, because the removal of *Loxia curvirostra* from *Loxia* as the monotypic type of **Crucirostra** Scopoli does not prevent the same species from later being designated as the type of *Loxia*. Furthermore, *Loxia curvirostra* is by tautonymy the type of *Loxia* Linnaeus.

Passerina Vieillot versus **Linaria** Bartram 1791 and Zimmermann 1793. (*Cf.* Mathews, 'The Auk,' XXXI, No. 1, Jan., 1914, pp. 88–90; Richmond, Proc. U. S. Nat. Mus., LIII, Aug. 16, 1917, p. 599.) Change rejected, because neither Bartram nor Zimmermann are either binomial or binary authors accepted by the International Zoological Commission.

Piranga Vieillot versus **Merula** Zimmermann. (*Cf.* Mathews, 'The Auk,' XXXI, No. 1, Jan., 1914, pp. 88, 90; Richmond, Proc. U. S. Nat. Mus., LIII, Aug. 16, 1917, p. 603.) Change rejected, on the ground that Zimmermann is here neither binomial nor a binary author accepted by the International Zoological Commission.

Hirundo Linnaeus versus **Chelidon** Forster. (*Cf.* Mathews, Novit. Zool., XVII, No. 3, Dec. 15, 1910, p. 501.) Change rejected, because Forster did not actually fix the type of *Hirundo* Linnaeus when proposing (Syn. Cat. Brit. Birds, 1817, p. 17) for *Hirundo rustica* Linnaeus the generic name *Chelidon;* wherefore Selby (Illustr. Brit. Ornith. (text), I, 1825, p. XXVIII) was the first to designate the type of *Hirundo* Linnaeus, and he selected *Hirundo rustica* Linnaeus.

Bombycilla Vieillot versus **Ampelis** Linnaeus. (*Cf.* Committee British Ornithologists' Union, List Brit. Birds, ed. 2, 1915, p. 362.) Change rejected, because the type of *Ampelis* Linnaeus is not determinable by tautonymy, since, in the 'Systema Naturae,' ed. 12, I, 1766, p. 297, the supposed synonym "Ampelis" is not used in the proper sense of "*the* Ampelis." Thus Gray's designation (List Gen. Birds, 1840, p. 34) of *Ampelis cotinga* Linnaeus becomes the first fixation of the type of *Ampelis*. Consequently *Bombycilla* is left as the earliest tenable name for the Waxwings.

Dumetella S. D. W. versus **Lucar** Bartram 1791 and Zimmermann 1793. (*Cf.* Mathews, 'The Auk,' XXXI, No. 1, Jan., 1914, pp. 88–91; Richmond, Proc. U. S. Nat. Mus., LIII, Aug. 16, 1917, p. 600.) Change rejected, because neither Bartram nor Zimmermann are either binomial or binary authors accepted by the International Zoological Commission.

Regulus Cuvier versus **Regillus** MacGillivray. (*Cf.* Richmond, Proc. U. S. Nat. Mus., LIII, 1917, p. 620; Mathews and Iredale, Austral

Avian Record, III, No. 5, 1917, p. 119.) Change rejected, because the authors of *Regulus* Bartram 1791 and *Regulus* Zimmermann 1793, which supposedly preoccupy *Regulus* Cuvier are neither binomial nor acceptedly binary.

Sialia Swainson versus **Rubecula** Zimmermann. (*Cf.* Mathews, 'The Auk,' XXXI, No. 1, Jan., 1914, pp. 89–90.) Change rejected, because Zimmermann is not binomial in the publication in question (Bartram, Reisen Nord- und Süd-Karolina, 1793, p. 287), nor is he a binary author accepted by the International Zoological Commission. Furthermore, *Rubecula* is not actually adopted as a generic name by Zimmermann, but simply cited as a polynomial synonym.

The list of "Nomina Conservanda" proposed by the Committee of the British Ornithologists' Union (List Brit. Birds, ed. 2, 1915, p. 355) contains the following five names that affect the present status of the A. O. U. Check-List:

Turdus musicus Linnaeus versus **Turdus iliacus** Linnaeus.
Asio flammeus (Pontoppidan) versus **Asio accipitrinus** (Pallas).
Cryptoglaux Richmond versus **Nyctala** Brehm.
Anas platyrhyncha Linnaeus versus **Anas boschas** Linnaeus.
Pterodroma Bonaparte versus **Oestrelata** Bonaparte.

These changes are not acceptable under the law of priority.

GENERAL NOTES.

Notes on the Black-crowned Night Heron in Western New York. According to all published accounts the Black-crowned Night Heron (*Nycticoras n. naevius*) seems to be rare in western New York. The 'Auburn List' 1874 records but a single specimen taken on Seneca River, no date given. Eaton, 'Birds of New York,' records it as a transient visitant, uncommon in the counties of Cayuga, Monroe and Ontario, occasional in Seneca, fairly common in Onondaga and with no record for Yates. And the only breeding record is for Erie County.

My first record for this bird was May 7, 1911, when I saw a single individual perched in a tree along the inlet of Keuka Lake at Branchport.

June 17, 1914, in company with Dr. G. S. Britten and Dr. George D. Lynch, of Syracuse, I visited a breeding colony of Black-crowned Night Herons in a small swamp at Lakeside, Onandaga Lake. There were about 75 nests in the herony, about 50 of the Night Heron and 25 of the Green Heron. They were all intermingled, with sometimes nests of both species in the same tree, and some nests were as low as six or eight feet from the water. At this time a few of the nests contained eggs and the others held young of various sizes from newly hatched to about one-half grown. This

herony was discovered May 15, 1914, by Miss Nettie M. Sadler, of Syracuse, a teacher of biology and an enthusiastic bird student.

In 1915 Miss Sadler saw the Night Herons several times but they did not nest at Lakeside. In 1916, however, she found them nesting in a swampy wood across the outlet of Onondaga Lake and east of the Oswego canal.

July 21, 1914, 10 P. M., I heard Night Herons "quawking" as they flew around over the streets of Branchport. They seemed to be flying in circles and working to the west, then again in the evening of July 25 a single Night Heron was seen at Branchport by Miss Sadler. April 23, 1916, two Night Herons were seen by Mr. C. F. Stone and myself. They were perched in a tree along the inlet.

My last record for these birds was in the evening of June 18, 1919, when I saw and heard one flying over the streets of Branchport.—VERDI BURTCH, *Branchport, N. Y.*

Bittern Displaying Its White Nuptial Plumes.—On May 21, 1920, when motoring with my friend, Dr. Lyman F. Bigelow, of Norwood, Mass., we visited a swamp of moderate extent within the town of Westwood, set as a bowl in the midst of woodland and surrounded on three sides by the wooded land on slopes rising well above the level of the swamp, which for the most part was bush-grown and not much open to view. But on the fourth side, where a town road runs beside it, it lay fully open. We had made the circuit of this swamp on foot, observing and enjoying the singing land birds, and were returning on the road to our car when our eyes, turned toward the swamp lying unobstructed before us, observed two pure white patches, not stationary, but moving slowly along among the bushes at the edge of the swamp. Our glasses at once revealed the form of a Bittern (*Botaurus lentiginosus*) carrying these most conspicuous patches of white at each shoulder, as large as a man's hand but not as long perhaps, being essentially round in form. Occasionally during our observation of the bird, which was continued for twenty minutes or more, these white feathers were raised as a ruff standing out from the natural contour of the bird; at other times they appeared to be more nearly even with the other feathers. These ruffs almost met across the back, but a narrow strip of brown feathers of the back was seen to separate them. To our eyes these ruffs were *pure white*. This conspicuous display of these large white patches was maintained without variation while we remained—different positions which the bird assumed did not materially change them. This Bittern occasionally 'pumped' and occasionally moved at a more rapid pace than the usual slow dignified walk, and at times strutted with the head carried forward. The erect stakelike position was also at times assumed, more especially when we first viewed the bird and it appeared that he was taking notice of our forms on the highway. If he did discern us, it had no effect to dissuade him from

his desire to display himself, for at no time did he withdraw the white ruffs into concealment. Several times for an instant a second Bittern, presumably the female, appeared in view, but only to become hidden at once behind one of the clumps of bushes. On the other hand, the male bird made no use of the bushes to screen himself. The distance travelled by this male bird during our observation was but a few rods, for he moved first in one direction and then in the opposite, first towards us and then away from us, and was only slightly further removed from us when we proceeded on our way, than when we first saw him. Our position had been about a hundred yards distant.

Mr. William Brewster's very interesting detailed description[1] of the display of these white nuptial plumes as witnessed by him and friends in the Great Meadows in Concord in April, 1910, then for the first time observed by him, presents the exhibition quite as we ten years later were fortunate enough to observe it in this Westwood swamp.—HORACE W. WRIGHT, *107 Pinckney St., Boston, Mass.*

The Knot in Montana.—On October 4, 1915, I found the mummified body of a Knot (*Tringa canutus*) on Woody Island in Lake Bowdoin, Montana (nine miles east of Malta), among remains of a large number of shorebirds and other species that had perished from disease. From the appearance of these bodies it appeared that the birds had died near the end of August or during the early part of September of that same year. All were lying on a muddy shore just above the water line, apparently where they had dragged themselves out of the water after becoming sick. Like the other specimens examined the Knot was not in suitable condition for preservation as a skin, and so was prepared as a skeleton. It is now in the osteological collections of the U. S. National Museum. This is apparently the first published record of the Knot in Montana.—ALEXANDER WETMORE, *Biological Survey, Washington, D. C.*

Tringa Auct. versus Calidris Anon.—It has been conclusively shown by Mr. G. M. Mathews (Novit. Zool., XVIII, No. 1, June 17, 1911, pp. 5–6) that the generic name *Tringa* Linnaeus must be transferred to the group commonly called *Helodromas* Kaup. This leaves the Knot, *Tringa canutus* Linnaeus, without a generic name, and Mr. Mathews proposes the use of *Canutus* Brehm (Naturg. Vög. Deutschl., 1831, p. 653; type, *Tringa canutus* Linnaeus). Dr. C. W. Richmond has called attention (Proc. U. S. Nat. Mus., LIII, August 16, 1917, pp. 581–582) to a still earlier publication of this name by an anonymous reviewer of Bechstein's Ornithologische Taschenbuch. This name, however, must give way to *Calidris* of the same anonymous reviewer (Allg. Lit.-Zeitung, 1804, II, No. 168, June 8, 1804, col. 542), which has anteriority over *Canutus* and which was introduced as follows:

[1] 'Auk,' XXVIII, Jan. 1911. Pp. 90–100.

"*Knüssel, Calidris.*

Schnabel walzenförmig, gegen die Spitze hin dicker, glatt. Mittlere und äussere Zehe etwas verbunden.

Tringa calidris, arenaria u. a."

The *Tringa calidris* here mentioned should by tautonymy be considered the type of *Calidris* [Anonymous], although the other species mentioned, [*Tringa*] *arenaria*, has as a synonym the same specific name *calidris* (= *Charadrius calidris* Linnaeus, Syst. Nat., ed. 12, I, 1766, p. 255). In such cases of tautonymy it seems by all means more logical to consider as the type the species the cited name of which is the same as the generic name proposed, rather than the species having the same name as a synomyn.

The type of *Calidris* Anonymous being thus settled as *Tringa calidris*, it remains to determine the identity of this *Tringa calidris*. It is, of course, the *Tringa calidris* of Bechstein (Ornith. Taschenb. Deutschl., 1803, p. 308), which is in turn the *Tringa calidris* of Linnaeus, (*i. e.*, Gmelin) since Bechstein quotes "*T*[*ringa*] *calidris* Linn." and "Linné, l. c., p. 681, N. 19," which latter, of course, refers only to Gmelin. But *Tringa calidris* Linnaeus (Syst. Nat., ed. 12, I, 1766, p. 252) and *Tringa calidris* Gmelin (Syst. Nat. I, ii, 1789, p. 681) are, anyway, one and the same; and as is unmistakably shown by the diagnoses of both and by the descriptions given by the authors on which both are based, they both clearly refer to the Knot, *Tringa canutus* Linnaeus; not to the Redshank, *Totanus totanus* (Linnaeus), as intimated by Mathews and Iredale (Austral Avian Record, III, No. 5, December 26, 1917, p. 114). This unexpected development makes it necessary to use the generic name *Calidris* Anonymous for the Knot, which will, therefore, now stand as

Calidris canutus (Linnaeus.)

This use of the generic name *Calidris*, of course, precludes its employment for the Sanderling just as effectively as though it were to be employed for the Red-shank. Consequently the substitution of the generic name *Crocethia* Billberg for the Sanderling, made by Messrs. Mathews and Iredale (Austral. Avian Record, III, No. 5, December 26, 1917, p. 114), remains valid, even though they misidentified the *Tringa calidris* on which *Calidris* Anonymous is based.—Harry C. Oberholser, *Washington, D. C.*

Early Virginia Rail in New York.—On March 13, 1920, Mr. William Gee, of Stony Point, N. Y., picked up a Virginia Rail at Bear Mountain, near Stony Point. The bird evidently had been killed by flying into telegraph wires. It was sent to me for identification by Mr. Fred E. Sleight, Principal of the Stony Point High School, and the record seems unusual enough to be reported to 'The Auk.'—Lee S. Crandall, *N. Y. Zoological Park.*

Least Flycatcher in Michigan in April.—April 4, 1920, weather cool, and many patches of snow still on the ground, Dr. Christofferson and myself, while on a bird jaunt much to our surprise discovered a Least Flycatcher. How the bird arrived here at such an early date is a mystery, as it should not have been much north of the latitude of Washington. This was just at the time of the severe storms accompanied by tornadoes that swept the country to the south of us, and it is possible that the bird was swept up and carried to this northern point in that way.

The earliest date I can find for the Least Flycatcher is April 23, at Petersburg.—M. J. Magee, *Sault Ste. Marie, Michigan.*

A New Name for Anairetes Reichenbach.—The generic name *Anairetes* Reichenbach (Avium Syst., 1850, pl. LXVI), or as it is often written, *Anaeretes*, is in common use for a group of South American Tyrannidae. It is, however, unfortunately preoccupied by *Anaeretes* Dejean (Catal. Col., 3rd ed., 1837, p. 181) and, therefore, needs to be replaced. It may be called *Spizitornis* (σπιζίτης, parus; ὄρνις, avis), nom. nov., with *Muscicapa parulus* Kittlitz as its type.

The species of this genus are as follows:

Spizitornis parulus parulus (Kittlitz).
Spizitornis parulus aequatorialis (Berlepsch and Taczanowski).
Spizitornis fernandezianus (Philippi).
Spizitornis reguloides (d'Orbigny and Lafresnaye).
Spizitornis nigricristatus (Taczanowski).
Spizitornis flavirostris (Sclater and Salvin).
Spizitornis agilis (Sclater).—Harry C. Oberholser, *Washington, D. C.*

A Raven Pellet.—In January of this year I picked up in a field at Santa Cruz Island, California, a pellet presumably ejected by a Raven (*Corvus corax sinuatus*). The pellet was three inches long with a diameter of one inch. It was examined by Mr. H. C. Bryant, of the California Fish and Game Commission, who writes: "Without pulling the pellet to pieces I discovered the following elements; parts of two Camel Crickets (*Stenopelmatus* sp.); parts of grasshoppers; 20 seeds of Poison Oak (*Rhus diveratola*); hulls of Wild Oats (*Avena fatua*)."

Mr. H. Harris, of Kansas City, Mo., who has kindly looked through the literature for me for mention of Raven pellets, writes that the only reference he has been able to find is in Vol. II of the fourth edition of Yarrell's 'British Birds,' edited by Alfred Newton, where, on page 260, it is stated: "A pair of Ravens known for many years to the Editor lived almost exclusively on moles, as he had ample facility for determining from repeated examination of the pellets of bone and hair which they, like so many other carnivorous birds, cast up." Mr. W. L. MacAtee tells me that there are no Raven pellets in the collection of the U. S. Department of Agriculture.

It may be that when the birds feed on refuse or carrion that there is not enough binding material to hold the pellets together for any length of time. Will not some one who lives in Raven territory collect more data?—RALPH HOFFMANN, *Santa Barbara, California.*

The Purple Grackle at Albany, Georgia.—During the week of April 14 to 22, I was very much interested in observing two pair of Purple Grackles feeding in the residence section of Albany, Ga., within one block of the business district. The four birds frequented this locality only, so far as I was able to learn, during that time and were observed and commented on by a number of people. They were remarkably tame and fed on the lawns within five feet of parties in conversation. Both pairs, so far as I could judge, were in full plumage and attracted considerable attention. The locality on which they fed during the entire week did not cover more than two city blocks. We never note these birds in the cities, through this section, which caused my interest.—PETER A. BRANNON, *Department of Archives, Montgomery, Ala.*

Note on the Generic Names Schiffornis Bonaparte and Scotothorus Oberholser.—The generic name *Schiffornis* was first proposed by Bonaparte (Ateneo Italiano, II, No. 11, August, 1854, p. 314) as follows:

"34. *Schiffornis*, Bp.—74. *major*, Bp.—75. *turdina* Wied.—76. *minor* Schiff."

As Dr. C. E. Hellmayr has already indicated (Genera Avium, IX, 1910, p. 24), two of the three specific names originally included—*major* Bonaparte and *minor* Schiff—were at that time nomina nuda. The third, "turdina Wied," is readily identifiable as *Muscicapa turdina* Wied (Beitr. Naturg. Brasil, III, Abt. 2, 1831, p. 817), which is the type of the genus *Scotothorus* Oberholser (Proc. Acad. Nat. Sci. Phila., 1899, p. 208). Dr. Hellmayr concludes that the name *Schiffornis* as used by Bonaparte in the publication above cited is a nomen nudum, because "two of the three species mentioned (*S. major* and *S. minor*) were undescribed at that time, while the third (*S. turdina*) belongs to *Scotothorus*." It seems clear, however, that this disposition of the name is not the correct one, while the two species, *S. major* and *S. minor*, being then undescribed, are, of course, not to be considered, the third, *S. turdina* Wied, which is perfectly tenable, becomes, by virtual monotypy, the type of *Schiffornis* Bonaparte. Since, furthermore, the name *Schiffornis* Bonaparte is long anterior to *Scotothorus* Oberholser and has the same species for its type, it must take the place of the latter, and the species and subspecies of that genus stand as follows:

Schiffornis turdinus turdinus (Wied).
Schiffornis turdinus wallacii (Sclater and Salvin).
Schiffornis turdinus olivaceus (Ridgway).
Schiffornis turdinus amazonus (Sclater).

Schiffornis turdinus rosenbergi (Hartert).
Schiffornis turdinus furvus (Ridgway).
Schiffornis turdinus veraepacis (Sclater and Salvin).
Schiffornis turdinus stenorhynchus (Sclater and Salvin).
Schiffornis unicolor (Bonaparte).
Schiffornis pallescens (Lafresnaye).
Schiffornis sulphureiventer (Hellmayr).
Schiffornis chrysocephalus (Pelzeln).

This disposition of the generic name *Schiffornis* leaves the group formerly called by this name without a generic designation, and we, therefore, propose to call it *Massornis* (μάσσων, major, ὄρνις, avis), nom. nov., and designate as the type species *Schiffornis major* Des Murs. This, the only species of the genus, will consequently be known as *Massornis major* (Des Murs).—Harry C. Oberholser, *Washington, D. C.*

Evening Grosbeak (*Hesperiphona v. vespertina*) in Minnesota in Mid-summer.—On July 28, 1900, on a bright and beautiful sunny day, between the hours of 12 and 1, while the family was seated at the dinner table, I was startled by a flock of at least five or six Evening Grosbeaks, which lit in a medium-sized Box-Elder tree near my home in Aitkin. I was so astonished that in our eagerness to see the birds both Mrs. Lano and I rushed to the open door to get a glimpse of them. They evidently heard us, for they were alarmed and flew away before we could see any of them. The distance between the tree and the dinner table was less than twenty-five feet and since there was also an open window beside the door on the same side of the house as the tree, their call notes could be heard very distinctly. They were very restless and called loudly, more so than I had ever heard them during winter seasons. Of their identity I was positive beyond the slightest shade of doubt, for I had observed the species for more than 15 years during their winter visits to the state.

Again I take the following from my notes: Aug. 4, 1903, while on my way from my home to my place of business at 7:30 A. M., I saw two Evening Grosbeaks flying over in a northwesterly direction. Both were uttering their familiar plaintive notes which can not possibly be mistaken for any other North American species.

My latest spring date is May 19, 1901, when a small flock was observed in town. But these, no doubt, were belated migrants on their way north to their summer home. If Evening Grosbeaks do not nest in Aitkin County, what were these birds doing there in mid-summer? If only an individual had been observed on one or two occasions it would be considered accidental. I am certain that some future day some ornithologist living in Aitkin County or even farther north, who will have more time at his disposal, will discover the species nesting, if not regularly, at least occasionally.—Albert Lano, *Fayetteville, Arkansas.*

Evening Grosbeaks Common at Lakewood, New Jersey.—It may be recalled that Evening Grosbeaks (*Hesperiphona vespertina vespertina*) have twice been recorded in 'The Auk' from Lakewood, New Jersey, as rarities. During the winter of 1919–20 they occurred frequently throughout my stay in the town, from February 11 to April 24; and there were a good many of them. On April 15, 1920, I counted eighteen in two maples on Lexington Avenue, near Main Street.

Has this garrulous bird often been heard to sing at the time of its eastern visits? I have never heard it sing, though I have met with it on many occasions in northern New England up to the middle of May.—NATHAN CLIFFORD BROWN, *Portland, Maine.*

Evening Grosbeaks at Princeton, New Jersey.—A flock of four Evening Grosbeaks (*Hesperiphona v. vespertina*), consisting of one male and three females, were recent visitors in the town of Princeton for several weeks. They were first observed by Mrs. Alfred T. Baker on February 16. They were positively identified by Prof. Alexander H. Phillips —well known as an ornithologist—feeding on the seed spread for birds at his own residence, on March 1; and by me on March 2, and were last seen by Prof. Phillips on March 13, the number having increased to eight —all females.

So far as I am aware this is the first record of these birds in the immediate locality.—HENRY LANE ENO, *Princeton, N. J.*

The Newfoundland Crossbill in the Washington Region.—A Red Crossbill secured at Four-Mile Run, Virginia, opposite the city of Washington, D. C., on November 30, 1919, proves to be an individual referable to the subspecies recently described from Newfoundland (*Loxia curvirostra percna* Bent). On first examination some doubt arose as to the identity of this bird as the skins of *percna* available were all in summer plumage. Mr. A. C. Bent, who has kindly examined the specimen in question and compared it with other fall and winter examples of the Newfoundland bird in his possession, informs me that it is undoubtedly a specimen of *percna*.[1] The bird is a male in plain plumage with little red evident on the feathers. It is noticeably dark in color and is of large size, being within the limits of variation given for *percna*. Measurements are as follows, wing 93 mm., tail 56 mm., and culmen 18.1 mm. It is probable that study of the series of Red Crossbills taken a number of years ago by various collectors in this region may reveal other specimens representing the Newfoundland race.—ALEXANDER WETMORE, *Biological Survey, Washington, D. C.*

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[1] See 'Auk,' 1920, p. 298.

White-winged Crossbill (*Loxia leucoptera*) in West Virginia.—The following notes on the recent occurrence of this species at French Creek, Adrian and Buckhannon, all in Upshur County, West Virginia, have been sent to me by competent observers. These records are as follows, and constitute the first reliable data in regard to the presence of the White-winged Crossbill in West Virginia:

"I saw the Crossbills at French Creek, W. Va., on the afternoon of January 22, 1920, and the two days following. January 22 was a cold day with a heavy sleet. I walked to the village, and, as soon as I came in sight of the hemlocks, noticed the birds in the trees and on the ground beneath. A nearer view revealed them as strangers, and I at once noticed their remarkable tameness. One finely colored male was working busily at a cone on a branch a foot above my head, and I stroked his side with the tip of my umbrella. Instead of flying he edged away, threw his head to one side and scolded me softly for interrupting his feast. There must have been thirty or forty of the birds present and I looked and puzzled until I was tired. I did not catch a sight of the crossed beak and could not think what they were. An hour later I returned and found the birds still there. A little group of three females were sitting in the road eating from a cone, and I approached them and picked one up in my hand. Then I saw the beak and recognized the birds, I carried the specimen home with me, made sure of the identification, then took it out on the porch and opened my hand. The bird flew about two feet and alighted on a vine. I think I might have picked it up again without any difficulty.

"Another flock appeared at the same time around the hemlocks near Adrian. I think I heard of a dozen being caught in the hand. Three or four days thereafter all disappeared and have not been seen since."

The next note was written in reference to a flock of White-winged Crossbills observed at Buckhannon, W. Va., the same day. It is as follows:

"On January 22, when passing by a large hemlock tree that stands well down on Kanawha Street, in Buckhannon, my attention was attracted to unfamiliar bird notes. I stopped and found that the birds making the notes were in the hemlock tree and on the ground under it. Just as I looked several of them flew down and began picking at the cones. I walked up closer to get a good look and found that they were very tame. There was a full-plumaged male very close and, by practising a little Indian stealth, I was able to place my hand over it. It kept prying at the cone scales all the time I was approaching, and only a few times looked up. I saw two or three males and perhaps five or six females or immature birds. The day was stormy and the birds acted as if they were very hungry."—Earle A. Brooks, *Everett, Massachusetts.*

An Erroneous Kansas Record for Baird's Sparrow.—In the Oölogist for 1907,[1] Mr. Logan Evans has recorded Baird's Sparrow (*Ammo-*

[1] Vol. XXIV, Aug., 1907, p. 124.

dramus bairdi) as breeding near Wilsey, Kansas, on the basis of a set of eggs taken with two specimens of the bird. At the time this note was published, I wrote from the University of Kansas at Lawrence requesting that the specimens be forwarded for examination. Mr. Evans responded promptly to this request, and on receiving the skins, I found that they were not Baird's Sparrow, but instead were Henslow's Sparrow (*Passerherbulus henslowi*). The bird was unknown to Mr. Evans and his note was made on the basis of the eggs which he forwarded to a dealer for identification. Although Baird's Sparrow probably passes through western Kansas during migration there is no record known of this species for the State. I have made careful search for it at a number of localities in the eastern part of the State (a search that has entailed a considerable mortality among obscurely marked individuals of LeConte's Sparrow, a species that abounds in migration) but as yet have failed to find it.—ALEXANDER WETMORE, *Biological Survey, Washington, D. C.*

A Scarlet Tanager at Thirty-fourth Street, New York.—On May 22, 1899, I took lodgings at 30 West Thirty-fourth Street, New York City, for a stay of three days; and on one of these days, as I sat at a south window, looking out over nearby yards into a solitary, rather large deciduous tree, I caught sight of a Scarlet Tanager (*Piranga erythromelas*) descending from a great height in a northeasterly direction. A moment or two later he had alighted in the tree before me.

I do not remember what next happened to this bird, but I believe that he had disappeared when I returned to the window after a short absence. It may be assumed, I think, that he was migrating and, since he was making his journey so late in the month and did not go a few blocks farther to one of the parks before alighting, that he was an example of the laggards, more or less subnormal, which are always to be found at migration time.—NATHAN CLIFFORD BROWN, *Portland, Maine.*

Bohemian Waxwing at Seattle, Washington, During the Winter of 1919–20.—After the remarkable invasion of this region in the winter of 1916–17 by the Bohemian Waxwing (*Bombycilla garrula*), it was hardly to be expected that another might soon occur, but during the past winter 1919–20, this locality has again been visited by this attractive bird, although by comparison the number of individuals was not nearly as great as in the preceding flight of three years ago.

The first report given us of their occurrence came from Mr. C. J. Albrecht, of this city, who noted a small flock November 25, about twelve miles east of the city and from that date the birds began to be seen in flocks of varying sizes, these increasing in numbers until about the middle of December when the maximum appeared to be reached, and it is also at this time and during a few subsequent weeks that the largest flocks were seen, we on two occasions observing one aggregating fully two thousand individuals.

We had many opportunities to watch these beautiful birds and observe their actions, so quote our notes made at the time:

"December 22—The weather the past week has been lowery with frequent rains and a temperature at times as high as 52 degrees. This morning we heard the Bohemians and found them in the same locality where we had previously seen flocks on two other occasions. The flock was a large one, a majority of the birds being perched in or near the top of a large maple tree, all headed directly into the wind which seems to be customary when any appreciable wind is blowing, from which individuals were constantly dropping down to feed on the berries in some adjacent mountain ash trees. As usual there was a constant movement in the flock, birds continually leaving it and returning and judging from the sound the greater number were uttering their soft rolling notes that are so pleasing to the ear.

"A striking and very noticeable thing about a flock is, when disturbed nearly all the birds will take wing and circle around a number of times until they come together in a close and compact body, then it appears as if at the same instant all were impelled by the same impulse to alight and the flock will sail up to the chosen spot on stiffly extended wings, this action on the part of each individual bird being uniform and so marked as to almost stamp their identity, and during these various evolutions the soft lisping notes of the birds are always much in evidence.

"December 25—We again watched the waxwings in the same locality as heretofore, it certainly is a favorite spot with them. For a long time our observations continued and we saw a repetition of the actions already noted, but among the birds in this flock were a few Cedar Waxwings, some California Purple Finches and the ever-present Western Robin, and these latter resented the intrusion of the Bohemians for they would frequently make a dash at the feeding birds and attempt to drive them away. This was futile for the Bohemians would simply shift their positions from wherever they might happen to be and resume feeding. During this time there was considerable noise made by all the birds which evidently had a reflex action on some few Shufeldt's Juncos and Oregon Chicadees in the neighborhood, for these quickly came over and joined the flock, making it quite a heterogeneous one.

"Among the Bohemians were many that evidently had eaten their full of the berries and these would quietly sit in the top of a large tree nearby and preen themselves, but from time to time some one of the birds with the same action as a flycatcher would fly from its perch after a passing insect, being at times successful, for on one occasion we were close enough to see the bird catch a large-sized light-colored moth. As these actions on the part of the birds were frequent there must have been numbers of the insects in the air.

"December 29—Early this morning saw a flock of the Bohemians alight in a large tree in the locality before mentioned, and as we watched

the birds several other flocks of varying numbers also appeared and joined the first, thus making a large one of nearly two thousand individuals, this estimate being based on as careful a count as could be made. The majority of the birds occupied the tops of three trees adjacent to each other from which many flew to small mountain ash trees close by to feed upon the berries, the remainder of the flock being perched on the telephone wires in the vicinity. There was a continual 'milling' going on in the flock, the individuals being constantly in motion, this activity being accompanied by their lisping notes.

"Near the base of the largest of the trees grew a tall decorative rose bush close to the edge of a retaining wall at the side of the street walk. This wall was about five feet in height, and as the bush had many hips numbers of the birds attempted to alight therein to feed, but its branches being too weak to sustain them would continually give way, and this in turn caused a constant commotion, for it kept the birds fluttering and interfering with each other and also dislodged many hips which fell to the walk beneath to be eaten by the birds alighting thereon.

"The appearance of this proceeding reminded one of a swarm of bees and the feeding birds were so engrossed as to be almost oblivious of our presence as we stood within a few feet of them.

"Several times the flock took wing and circled above the trees, then returned to scatter about—some in the bushes, some on the phone wires, but the greater number gathered in the tops of the trees and no matter how engaged or whether or not on the wing they did not cease their notes. Finally being disturbed all arose in a body, made a wide swing or two and breaking up into several small flocks left the locality."

Flocks of Bohemian Waxwings continued to be seen in this vicinity during January and the early part of February, after which their numbers rapidly diminished and they were less frequently seen. Our last record is March 1, when a few birds were noted by Mr. C. J. Albrecht in the northern part of the city.

The species was also well distributed throughout this region, for we have records of its appearance from as far to the north as Prevost, on one of the San Juan group of islands north of the eastern extremity of the Strait, this being given us by Mr. D. E. Brown, of Seattle, to as far south as Olympia, and it is a fair assumption that the movement must have been of quite wide extent.—S. F. Rathbun, *Seattle, Wash.*

Bohemian Waxwing at Salem, Mo.—January 1, 1918, a bunch of about ten of these birds were seen in an apple tree near my home, in Salem, feeding on the withered apples still on the tree. They were very tame and unsuspicious, and one could come within ten feet of them as they fed, without disturbing them. Their lisping notes and their method of flight were like the Cedar Waxwing. They were, however, appreciably larger; the black stripe along the eye, the black spot on the throat, the

white and yellow on each wing, and the broader band of yellow on the tail were clearly seen. The general body color seemed grayer than the Cedar Waxwing. One bird was also seen January 2 near the same place. PAUL DENT AND DENT JOHERST, *St. Louis, Mo.*

Bohemian Waxwing (*Bombycilla garrula*) at Rochester, N. Y. A flock of 65 of these birds was first seen on February 28, 1920, by Mr. Horsey, who then called Mr. Edson and both of us then studied them until we saw clearly all the points which separate them from the Cedar Waxwing (*Bombycilla cedrorum*). We were able to observe the chestnut rufous under-tail coverts, white and yellow on wings, larger size and grayer coloration. The notes, too, are very distinctive, being much louder, and could perhaps be described as a lisped whistle. The flock remained intact for four days and from 65 to 2 were seen every day until March 9. But 2 to 35 birds were noted several days afterwards until March 26, when five birds were seen. They were here 18 days in all.—W. L. G. EDSON AND R. E. HORSEY, *The Herbarium, Highland Park, Reservoir Ave., Rochester, N. Y.*

Bohemian Waxwings, at Rochester, N. Y.—March 3 was the first day that I had an opportunity to study the waxwings recorded above by Messrs. Edson and Horsey. Thirty of them were in the same crabapple tree in which they were first seen feeding on the fruit. Only eight or ten being in the tree at one time, the others were in the top of a nearby elm. As soon as one would get two or three berries in its crop it would fly to the elm while another bird would fly to the vacated place in the crab-apple. As they flew past, some within four feet, their flight seemed to be slightly swifter than the Cedar bird's. I was able to approach within eight feet of the birds without having them show any signs of alarm, but if I moved slowly forward they would watch me carefully, only those on the opposite side of the bush feeding, until I was about six feet from the nearest bird. Then he would leap into the air and fly to the elm to be quickly followed by the others. At this close distance the distinguishing marks were very readily observed. It was very apparent that the birds were larger than the common waxwings and seemed to be nearer two than one inch longer. The body coloration was lighter than in the Cedar bird and the black throat showed much more plainly. The other identification marks such as the chestnut under tail-coverts and the yellow on the tip and lower margin of the primaries and the white on the tips of the secondaries were very clearly seen. The notes, which were to be heard continually, were much louder than those of the Cedar Waxwing and were more like a trill than a lisp.

The next opportunity I had to observe the birds was March 5. Twenty-three individuals were at the same place but five was the largest number seen in the crab-apple at one time.

On March 6 twenty birds were seen in the elm but none were in the crab-apple. Probably they had finished eating, as I did not see the birds until 8:45 A. M. They always fed in the early morning and left the park about nine o'clock.

Only two birds were seen in the elm on March 9.

Then the weather grew warm and the Waxwings were not seen for a day or two and we thought they had gone north. They appeared again, however, and my next date is March 18. A flock of thirty-five was found feeding on a species of crab-apple in a different part of the park, the other bush having been stripped practically clean of the fruit.

On March 23 I found fifteen of the birds feeding at the second place.

March 26, the last day they were seen here, five Bohemians were feeding on this crab-apple in company with three Cedarbirds. The differences were very plain and I fail to see how any one can confuse the two.—Richard M. Chase, *Rochester, N. Y.*

Autumnal Stay of the Parula Warbler in Maine.—The evidence at hand led to the statement[1] in 1882 that the Northern Parula Warbler (*Compsothlypis americana usneæ*) left Portland, Maine, and its vicinity early in September; but observations of subsequent years have shown that it remains up to the very end of the month, at times, some of the males singing in a subdued manner to the last. Possibly stragglers tarry much later, for on October 26, 1914, I came upon a cat at the west end of Portland, which held in its mouth a dead Parula. I could not get possession of the bird, but, as the cat mouthed and played with it, I could see that its neck and feet were free from stiffness and that its plumage was unmatted and clean, suggesting that it had just been killed.—Nathan Clifford Brown, *Portland, Maine.*

The Blue-winged Warbler (*Vermivora pinus*) on the Coast of South Carolina.—On April 30, 1920, I heard the song of a warbler that was new to me, and as the beginning of the song closely resembled that of Bachman's Warbler (*Vermivora bachmani*) I at once tried to locate the singer. This bird was in a ravine of second growth and was so restless that 20 minutes elapsed before I could see it plainly, when I identified it as a male in very high plumage, the yellow of the under parts being very brilliant. The character of the place was so dense that at no time could I get a shot at it, and the bird ceased singing and finally disappeared. The only other previous record for South Carolina is a specimen taken by Mr. Leverett Mills Loomis at Chester on April 30, 1887 ('Auk,' VIII, 1891, 169).—Arthur T. Wayne, *Mount Pleasant, S. C.*

[1] Proc. Port. Society Nat. Hist., 1882, p. 7.

Hooded Warbler (*Wilsonia citrina*) at Detroit, Michigan.—On May 6, 1920, I saw an adult male of the Hooded Warbler (*Wilsonia citrina*) at Belle Isle, the island park of Detroit. The bird was seen within a distance of ten feet in low bushes, and carefully watched for some little time. From long familiarity with the species at Washington, D. C., the identification is beyond question. I have never been able to add this species to the list of Birds of southeastern Michigan, although I have a record of a male seen by myself, September 19, 1903, also at Belle Isle, a record that in after years I have held open to question. The nearest record adjacent to this region is that of a young female secured in the fall of 1880 at Ypsilanti, Washtenaw County, by Dr. Van Fossen, which is in the collection of the Museum of Zoology, University of Michigan.—Bradshaw H. Swales, *U. S. National Museum, Washington, D. C.*

***Penthestes hudsonicus hudsonicus* in North Dakota.**—An interesting new bird for North Dakota is reported by Mr. Alfred H. Eastgate, of Bottineau, North Dakota, to whom the writer is indebted for the privilege of placing it on permanent record. While working near Upsilon Lake, west of St. John, in the Turtle Mountains, North Dakota, on November 13, 1919, Mr. Eastgate noted two or three strange Chickadees, but could not approach them closely enough to be sure of their identity. Later in the same day one was found dead, and it proved to be the Hudsonian Chickadee, *Penthestes hudsonicus hudsonicus*.—Harry C. Oberholser, *Washington, D. C.*

Labrador Brown-cap Chickadee (*Penthestes hudsonicus nigricans*) at Rochester, Monroe County, New York.—Two birds individuals of this subspecies were observed by the undersigned on November 6, 1919. They were identified by the much darker mouse-colored cap than that of the Acadian Chickadee (*Penthestes hudsonicus littoralis*) with which we became very well acquainted in the winter of 1913–1914. Another point which seems characteristic is the activity of the Labrador as compared with the rather logy action of the Acadian, the latter bird could almost be picked off from a tree, while the Labrador seems even more active than our common Black-cap Chickadee (*Penthestes atricapillus*). The notes, too, are different from either of the others. This bird uses only three notes at a time, thus "Chicka dee dee," and they are pitched higher than those of the Acadian. Except on November 6 and 8, 1919, only one bird was seen at a time. From December 20, 1919, on to the time he left on March 30, 1920, he came to the Herbarium feeding station for suet. As this suet is packed into holes bored in a stick and the stick is hung on the window casing we were able to watch the bird at very close quarters by merely looking through the window. He was observed on 98 days during his stay with us.—W. L. G. Edson and R. E. Horsey, *Highland Park, Rochester, N. Y.*

Blue-gray Gnatcatcher in the Boston Public Garden.—On May 18, 1920, in the largest flight of migrant birds which has visited the Public Garden this season, came a Blue-gray Gnatcatcher (*Polioptila caerulea caerulea*). The bird, a male, all at once appeared in a moderate-sized English elm at the Arlington Street side of the grounds near Beacon Street before two fellow observers, Mrs. Calvert Cravy, Mr. Allan B. Craven, and myself, and remained in view scarcely more than two minutes, taking one other perch in a neighboring tree, and then being lost to our view. As there were many observers in the Garden on this occasion, it being the appointed morning for the visit of members of the Brookline Bird Club, and this Gnatcatcher could not be found again by any of them, it is probable that the two-minute period during which it was under observation by us marked the entire length of its visit and that it passed out immediately to other haunts. Only one other visit of the Gnatcatcher to the Garden has been observed and recorded,[1] that of one on October 22, 1904, following a southeast rainstorm with warm winds of almost gale force. On the present occasion a southwesterly breeze during the preceding night warming up the day to a maximum temperature of 77° had brought in natural sequence a flight of nearly sixty migrant birds to the Garden, of thirty-one different species, including fifteen species of warblers. One other record,[2] intermediate in time with the two above given, was obtained in Olmsted Park, lying between Boston and Brookline, on December 3, 1910, when the Gnatcatcher was in companionship with an Orange-crowned Warbler. The citation of dates of these three occurrences observed by me indicates how accidental as to season, as well as visitant at all, is the Blue-gray Gnatcatcher in the Boston Region.—Horace W. Wright, *107 Pinckney St., Boston, Mass.*

The Blue-gray Gnatcatcher (*Polioptila caerulea caerulea*) at Quebec, P. Q.—About 2:15 p. m. (Eastern Standard Time) on May 18, 1920, I stood on the wooden walk which has been built just below the southern wall of Quebec Citadel, three hundred feet above the St. Lawrence River, at the top of the steep, rocky cliff which forms the southern face of Cape Diamond. The surface of the declivity below me was partly bare and partly covered by grass and dead weeds or scattering clumps of bushes. There were no trees anywhere in the vicinity. Among the bushes were many migrating birds, for the most pronounced wave of bird migration of the spring of 1920 reached Quebec May 18. The preceding night had been warm and hazy, with light, variable winds, and the day itself was fine and quite summer-like, with an official maximum temperature at Quebec of 76° F.

In a bush on the cliff a few feet below me I saw what at first glance I took to be a Parula Warbler. I focused my binoculars (×3) on the

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[1] 'Auk,' XXII, Jan. 1905, pp. 87, 88.
[2] 'Auk,' XXVIII, Jan. 1911, pp. 117, 118.

bird and soon saw that my first supposition was wrong. I distinctly observed that the bird was about the size of a Kinglet, with upper parts almost uniform bluish-gray, seeming slightly lighter on the upper tail-coverts, wings fuscous, tail black centrally but with white outer feathers, and underparts uniform whitish. It was catching insects on the wing in a rather leisurely way, and I watched it for seven or eight minutes in excellent light with binoculars at distances varying from twenty to thirty feet, and obtained many clear and satisfactory views of it as it perched on the bushes and dead weed-stalks. Owing to the extreme steepness of the cliff, it was always below my eye, and while I thus saw its upperparts clearly, I could not satisfy myself as to whether or not there was black on its forehead. It frequently twitched its tail, and at irregular intervals uttered its note, which was a *pe-e-e*, low, weak, and rather hoarse. It resembled somewhat the *mew* of a Catbird, but was much lower and lighter. The bird was still among the bushes when I left.

At 4:15 p. m. the same day I returned and soon found the bird, which I watched for about half an hour, using my binoculars, and often seeing it clearly, sometimes at a distance of but fifteen feet. I verified my previous observations, and when the bird perched in a bush close beside the walk, where it was nearly at the level of my eye, I found that a clear, steady view of its forehead revealed no black. I left it where I found it, but could not rediscover it next day, nor on the day after.

Undoubtedly the bird was a Blue-gray Gnatcatcher, *Polioptila caerulea caerulea* (Linn.). I had never seen the species before, and so do not know just how conspicuous the black on the forehead of the male should be. The only previous claim of this species to a position in the avifauna of Quebec Province appears to be the statement by Wintle (Birds of Montreal, 1896, p. 126), which reads as follows:

"'Accidental visitant' [at Montreal]. Mr. Kuetzing saw one 'example of this species in Mr. Craig's collection, shot on the island of Montreal a number of years ago,' but Mr. Craig says he 'does not remember having it in his possession.'"

As this can hardly be considered satisfactory, the present appears to be the first certain and definite record of the Blue-gray Gnatcatcher in Quebec Province.—Harrison F. Lewis, *Quebec, P. Q.*

The Russet-backed Thrush (*Hylocichla ustulata ustulata*) Taken near Charleston, S. C.—On October 22, 1901, I shot a male of this species near Mt. Pleasant that was feeding upon dogwood berries, and on May 3, 1902, I shot another specimen. These two birds were without any hesitancy labeled by me *Hylocichla ustulata swainsoni* and packed away. Last year I received a specimen of *H. u. swainsoni* taken by Mr. Otto C. Hastings at Bridgeport, Conn., which led me to compare my two South Carolina birds with his specimen with the result that the South Carolina specimens were entirely different as regards the coloration of the back.

This spring I made a special effort to obtain an Olive-backed Thrush, and on May 5, I shot a typical adult male near my home. As soon as I lifted the specimen from the ground I was satisfied that the two birds I had taken in 1901 and 1902 were none other than the Russet-backed Thrush; but to place the identification beyond question I wrote my friend, Mr. J. H. Riley, to send me a specimen of *H. u. ustulata* from the U. S. National Museum collection. Mr. Riley sent me an adult male taken by Mr. Ridgway on June 16, 1899, at Sitka, Alaska, which is identical in coloration with the two South Carolina birds. Here is a case of a Pacific coast bird occurring in South Carolina, in the autumnal as well as in the spring migration and may prove to be a regular migrant.

When I collected with my late friend, Mr. William Brewster, near Charleston in 1884 and 1885 I remember perfectly of his shooting Olive-backed and Gray-cheeked Thrushes and of his explaining the difference between these birds from specimens shot in the woods which he laid side by side. My impression is that all the of the Olive-backs he shot were typical representatives of *swainsoni*.

Since I began to collect birds in 1883 I do not believe I have shot six Olive-backed Thrushes, but of the great numbers I have seen at close range the backs seemed to me to be of the same color as the Gray-cheeked Thrush.—Arthur T. Wayne, *Mount Pleasant, S. C.*

Remarkable Migration of Robins.—On March 19, 1920, during a rain at midday at Chicago, the wind died out, causing the fog and smoke to settle down bringing total darkness. This condition lasted several minutes when the wind shifted from southwest to north and freshening, brought a heavy fall of wet snow. A large flock of Robins numbering several hundreds was observed on the south side of the city, near the loop, flying northwest. It took fully five minutes for them to pass a given point. A small bunch leaving the main flock would settle on wires, housetops and vacant lots, apparently to rest before going on. These small flocks were passing for at least half an hour after the main flight had gone on. This is the first time I have seen flocks of Robins, in the daytime, in such unusual numbers.—Edw. E. Armstrong, *2249 Calumet Avenue, Chicago, Ill.*

Some Rare Birds, for Yates Co., N. Y.—Melospiza lincolni lincolni. Lincoln's Sparrow.—On October 13, 1901, I secured a male of this species, the only one I have ever observed here.

Tringa canutus. Knot.—This is a rare bird in Western New York, to say nothing of Yates Co. I obtained a specimen for identification on September 11, 1904, while it was associating with a host of other Sandpipers along Lake Keoka. This seems to be the first recorded occurrence of the Knot here since 1874.

Nuttallornis borealis. Olive-sided Flycatcher.—It was my pleasure to add this bird which is extremely rare here to my Yates Co. list on

June 7, 1911, when I heard its oft repeated "pip pip pip" always three times with an interval before the next call. I found him perched on the peak of a dead pine along a hemlock clad gully.

Buteo platypterus. BROAD-WINGED HAWK.—The only time I ever observed this hawk hereabouts, was on April 24, 1913, when I not only heard the familiar plaintive cry, but observed the bird clearly as it flew along the willow-fringed shore of Lake Keoka. It is singular that the Broad-wing does not occur here as a breeder for the moist woodland of Potter swamp would be an ideal nesting haunt for it. This is the only noted occurrence during 29 years of active field work.

Olor columbianus. WHISTLING SWAN.—Five of these graceful swans descended into the west branch of Lake Keoka during a snow storm on November 13, 1919, remaining all afternoon and night. So far as I am aware this is the first occurrence of swans hereabouts since November 1, 1905, when five appeared on Lake Keoka near Penn Yan. Of the latter one was reported killed on November 25.

Just previous to November 13, 1919, five swans were reported on Seneca Lake which were probably the same birds, that were seen here.—CLARENCE F. STONE, *Branchport, N. Y.*

Notes from Springfield, Mass. Aluco pratincola. BARN OWL.—About the first of last December a Barn Owl was taken in Forest Park, in Springfield. There are but two other records of the presence of representatives of this species of bird in this part of the Connecticut valley.

Spizella monticola monticola. TREE SPARROW.—In February, 1916, ten Tree Sparrows were taken alive in Longmeadow, a suburb of Springfield, banded, and then liberated. This act was done on premises where, for a long time during the colder months of each year, wild birds had been liberally supplied with food. Three of these banded birds returned and made their home on these premises during each of the two succeeding winters. During the season of 1918 and 1919 the house on this lot was closed, and it was not known whether any of these birds were then present or not. This winter the house was again occupied, and food provided for the birds, and two of these Tree Sparrows appeared there, each wearing the band that was placed on its leg four years ago.—ROBERT O. MORRIS, *Springfield, Mass.*

Notes from St. Louis, Mo.—Four Whistling Swans(*Olor columbianus*) were seen on Dardenne Island, Mississippi River, about ten miles above the mouth of Illinois River, March, 1919.

They are the first wild swans seen in this locality in many years—I found only one old fisherman and trapper who could recall seeing swans in this locality before, and he stated they were the first he had seen since the early nineties. I saw these four adults on the Island, March 20, 1919, at 10:42 A. M., and approached within fifty yards of them in a motor boat. They were such a grand sight, I did not attempt to collect a specimen. They were first seen in this locality about March 1, 1919.

A Blue Goose (*Chen caerulescens*) was killed at Golden Eagle, Ill., on the Mississippi River, October 25, 1919. It was a fine adult male, the first seen in this locality in many years, and was shot by C. A. Vogel.—F. Roy Dean, *St. Louis, Missouri.*

Merrem's 'Beytrage.'—As is well known, Merrem's 'Beytrage zur besondern Geschichte der Vögel' consists of two parts published in 1784 and 1786, both in German. A Latin edition of both parts appeared in 1786.

Recently Dr. C. W. Richmond wrote me that there was some question about the names which appear on the plates of the first part. A copy before him when he wrote had only German names, while the copy that he had consulted some time before in the library of the Academy of Natural Sciences of Philadelphia, according to his memoranda, had both German and Latin names, as is the case with the second part. Upon examining this latter copy I find that Dr. Richmond is correct. It is, however, perfectly evident that the Latin names have been added after the plates had been engraved, for while the German names are centered, the Latin ones are placed either before or after them wherever there was more space, and are in a different hand. At first I was of the opinion that they had been written by hand, but after a very careful examination I am convinced that they have been etched into the plate as there is some difference in the color of the ink on the several plates, some being jet black while others are decidedly brown, and in every case the Latin names correspond in tone with the rest of the plate. Moreover the handwriting of the Latin names in part one is the same as that of all the names in part two.

The conclusion is therefore obvious that the 1784 edition of part one was printed without Latin names, but that when part two appeared the engraver added Latin names to the plates of part one and an extra edition was printed to accompany part two, although the date was not changed. The result is that the names *Cotinga rubra* and *C. cuprea* (Plate 1); *Gracula nobilis* (Plate 2); *G. chrysoptera* (Plate 3); *Mellisuga coccinea* (Plate 4); *Merops spiza* (Plate 5); and *Muscicapa ferruginea* (Plate 6) have no standing from this part at 1784 but date, so far as this work is concerned, from 1786.—Witmer Stone, *Academy of Natural Sciences, Philadelphia.*

Erratum. The memorial to the late William Brewster, adopted by the Nuttall Ornithological Club and published in 'The Auk' for January, p. 27, was prepared by Mr. F. B. White, not "E. B. White" as printed.—*Ed.*

RECENT LITERATURE.

Mathews' 'Check List of the Birds of Australia, Part I.'[1]—Having reached the half-way point in his great work on the birds of Australia, Mr. Mathews publishes a list of all the species so far treated, with the synoymy of each and references to his own plates and those of Gould. He explains that while the work was in progress so many questions relating to the proper names for the various species were under discussion, that the names used on the plates are in many cases not those that he would use today. Hence the need of a list of present day names with the proper concordance.

As Mr. Mathews' work progressed there has been noticeable a constantly lessening degree of importance attached to the subspecies, until now they have reached a condition of degradation that will delight the hearts of certain of his Australian friends who for some years past have been complaining of the tremendous increase in the number of "kinds" of birds that he has named. Mr. Mathews explains that "the number of subspecies accepted must always be a variable one, according to the material available and to a certain extent upon the personal idiosyncrasy of the worker," and therefore he thinks that a list of the species only, with the subspecies arranged under them will be of more general use. As a matter of fact he lists the subspecies along with synonyms etc., so that it is absolutely impossible to tell from the list how many he intends to recognize. Some are in binomial form, others in trinomial and some of each class he accepts while others he rejects. Never the less this list, as he says, will probably be of more general use than any of its predecessors.

A very valuable feature is the determination of the exact date of publication of each name as nearly as it is possible to ascertain it, as well as the place and method of the type fixation of each genus.

In the preface Mr. Mathews has a brief defence of his attitude on generic subdivision in which he claims not to be an extreme splitter. His comparison with the work of the B. O. U. Committee does not seem to us very well taken and the fact that of the 279 genera that he considers are necessary for the 334 species listed, he has had to establish at least sixty that were not deemed necessary by any writers up to the time of the 'British Museum Catalogue'—and sometime after—seems to stamp him as rather an extremist in the matter of generic division. Mr. Mathews certainly shows commendable perseverance in his efforts to make his generic division consistent but the point is that a large majority of scientific workers do not concede the necessity for such effort when our nomen-

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[1] Supplement No. 1. The Birds of Australia. By Gregory M. Mathews. Check-List of the Birds of Australia, Part I. Orders Casuariiformes to Menuriformes. London: Witherby & Co., 326 High Holborn, W. C. I. February 16, 1920, pp. 1–116.

clature is, by the process, rendered meaningless except to the favored few. The reviewer has already expressed at length his view that the groups demanded by consistency or for phylogenetic purposes can just as well be expressed as subgenera without making a plaything of our nomenclature. (Science, April 20, 1920, p. 427.) Generic subdivision seems to us, to quote Mr. Mathews' expression, even more a matter of "personal idiosyncrasy" than the coining of subspecies. We are all agreed with Mr. Mathews on the importance of recognizing differences (and resemblances too!) but it should and can be done without inconveniencing everyone else. As the instructions to the binder suggest the binding of this "Part" at the end of Volume VII we infer that "Part 2" will not appear until the work is entirely completed, by which time let us hope that our good friend the author will have adopted the same conservative stand upon genera that he has now reached in regard to subspecies.—W. S.

Mathews' 'Birds of Australia'.[1]—Part I of Volume VIII appeared on May 5, 1920, and in it Mr. Mathews begins the treatment of the long list of passerine birds. The Pittidae, Atrichornithidae and Hirundinidae are completed in this number and the first species of the Muscicapidae are considered.

A rather lengthy discussion of the classification of the Passeriformes begins the number which is well worth careful reading. While the author does not advance any new ideas in the classification which he adopts, he presents some rather caustic criticism of characters used and diagnoses of groups, presented by others. His principal grievance seems to be with the importance accorded to anatomical characters and after quoting a diagnosis of the family Picidae: "Feet zygodactyle; after-shaft small or elementary; oil-gland tufted. Muscle formula of leg, AXY (AX); gall bladder elongated; skull without basipterygoid processes," he says: "Surely it is time to provide some more reasonable kind of guide to bird study than such inadequate terminology," and again in referring to anatomical terms he says that they "mean little or nothing to the ornithologist who has to deal with skins and not much more to anyone else."

While we are willing to admit Mr. Mathews' contention that too much weight may have been given to certain anatomical characters and that even the structure of the syrinx in the Pittidae may not necessarily indicate any close relationship to Neotropical groups with similar structure, but may merely indicate degeneration in both instances from "oscinine" types; there is still no reason why they may not have come from the same stock and represent isolated groups of a widespread type now approaching extinction. Mr. Mathews does not think, moreover, that similarity in syrinx structure should be held to unite such dissimilar-looking birds as the

[1] The Birds of Australia, Witherly & Co. Vol. VIII. Part 1, May 5, 1920.

Pittas, the Philepittas of Madagascar and the Xeniscidae of New Zealand, but in the South American Tyrannidae or Formicariidae we find just as much divergence in external characters among species which we feel sure must be closely allied.

At any rate we cannot think that Mr. Mathews is really serious in the statement quoted above, regarding the work and terminology of the anatomist, since in his succeeding pages he repeatedly calls for anatomical investigation of Australian birds and states that a description of the skeletons of the principal types of Muscicapidae would be "worth much more than any series of skins." This is the true scientific spirit and we can hardly think that he would do away with the characters proposed by the anatomist merely because the terminology is meaningless to the student of skins. There is, however, much food for thought in the matter that he has discussed.—W. S.

McGregor's 'Index to the Genera of Birds'.—In 1889 appeared a work entitled 'Index Generum Avium. A List of the Genera and Subgenera of Birds,' by F. H. Waterhouse, librarian to the Zoological Society of London. For over thirty years this has constituted an indispensable work of reference to all systematic ornithologists and in 1902, 1909 and 1917 Dr. C. W. Richmond published in the 'Proceedings of the U. S. National Museum,' three supplements to it, listing not only the generic names proposed for birds in the intervening years, but a list of names overlooked by Waterhouse and another list of names given by him which are not proposed as genera or apply to other groups than birds.

Mr. McGregor[1] has now given us another volume very similar in scope to that of Waterhouse but bringing the matter up to 1917. He does not base his catalogue upon Waterhouse's 'List' but begins de novo, cataloguing successively the generic names mentioned in Bonaparte's 'Conspectus' of 1850 and 1865; Gray's 'Hand-list,' 1869–1871; the 'Catalogue of Birds of the British Museum,' 1874–1895; Sharpe's 'Hand-list,' 1899–1909; DuBois's 'Systema Avium,' 1899–1904; and Richmond's three 'Supplements' to Waterhouse. The names thus compiled were then arranged in alphabetical order and under each is given the volume and page reference to all of the above works in which it may have been mentioned, the reference being printed in heavy-faced type if the name is recognized as valid, and in light-faced type if it is given as a synonym. The author of the name does not appear, nor does the original place of publication, but from the references cited the full history of the name can usually be ascertained and these matters looked up by the investigator. As Waterhouse usually only gave one reference, and that by no means always the original one, Mr. McGregor's plan really leads us directly or indirectly to much more information regarding the name which we are investigating than did the older work. Furthermore the brevity of his references enables him to print the names in three columns to the page

and makes it possible to include the whole 8839 names and some 24,000 references on 180 octavo pages.

A casual glance over the pages does not disclose any typographical errors and we have been able to find only one omission. The real test of course must come from actual use, but the general appearance of the list indicates a very careful piece of work.

A recent letter from the author states that his editorial duties seriously interfere with his ornithological research work, but if his time and opportunities permit only of the preparation of such valuable compilations as the one before us he need have no fear of being charged with neglecting his favorite science. Anyone who has had experience with the dreary monotony of compiling a list or index will fully appreciate the labor involved in Mr. McGregor's modest publication and will recognize the indebtedness that all those interested in systematic ornithology must feel toward him for his helpful work. McGregor's 'Index' will henceforth take the place of the familiar 'Waterhouse' and the fact that a publication of this sort bears the imprint of Manila is a tribute to the good judgment of those who direct the Philippine Bureau of Science.—W. S.

Witherby's 'Handbook of British Birds.'[2]—The appearance of a bulky double part 7–8, on April 8, completes the first volume of this admirable work. The birds treated cover the Thrushes and their allies, the Wrens, the Dippers and the Swallows, while two half-tone plates illustrate the juvenal plumages of the first of these families and a third depicts the several geographic races of the Wren and the Dipper.

The genus *Nannus* is regarded as not separable from *Troglodytes* and our American Winter Wren and Barn Swallow are regarded as subspecies of their European representatives instead of distinct species.

The work lives up to the high standard established by the first part and volume one is completed before the time set by the publishers, on both of which accomplishments they are to be congratulated.—W. S.

Hartert's 'Die Vogel der palaarktischen Fauna.'—The present part of Dr. Hartert's famous work covers the Ibises, Herons, Flamingos and Ducks and Geese. The treatment is the same as in the preceding parts and the same high standard is maintained. We notice in the nomenclature certain practices which differ from those of the A. O. U. 'Check-List.' The genera *Herodias* and *Egretta* for instance are united, as are also *Anas, Nettion, Querquedula, Chaulelasmus, Mareca* and *Dafila*, while

[1] Index to the Genera of Birds. By Richard C. McGregor. Manila, Bureau of Printing, 1920, pp. 1–185. (Dept. of Agriculture and Natural Resources. Publication 14, March 31, 1920.)

[2] A Practical Handbook of British Birds. Edited by H. F. Witherby. Parts 7–8, April 8, 1920. Price 4s. net per part. Witherby & Co., 326 High Holborn, W. C. I.

Chen is not considered separable from *Anser*, nor *Olor* from *Cygnus*. Our Redhead, moreover, is regarded as a subspecies of *Nyroca ferina*, and our Green-winged Teal a subspecies of *Nettion crecca*. While we personally approve some of the generic reductions we do not think that the facts warrant these subspecific references. The reference of all the forms of Green Heron as subspecies of the South American *Butorides striatus* also seems unwarranted. Under this species we notice two new forms: *B. s. degans* (p. 1251), Seychelles; and *B. s. moluccarum* (p. 1251), Moluccas.

Increased cost of printing necessitates an increase in the price of the work of eight marks per part.—W. S.

Chapman's 'What Bird is That?'[1]—In these days when almost every other person one meets is a bird student, there is a constant demand for bird books especially those that present the subject in a novel manner. Such a work is the latest of Dr. Chapman's ornithological textbooks entitled 'What Bird is That?' which answers the question presented in its title in a most satisfactory manner.

Instead of the usual analytical key we find at the beginning of the volume little colored pictures of all the land birds of the Eastern United States. They are represented on stands and branches as mounted museum specimens, arranged on the shelves of a case, or series of cases, and are grouped according to season, so that in cases 1 and 2 we find all of the winter birds of the region, in cases 5 and 6 the early spring migrants and so on. Having found our bird among the colored figures we turn to the main text which covers the 300 species of the Eastern States and find a short description with dates of occurrence at several localities, taken from the author's well-known 'Handbook,' and a paragraph covering the more striking habits of the species, and its nesting.

The book is an elaboration of the plan, first adopted, we believe, by Dr. Chapman, in the American Museum of Natural History, of exhibiting in one case the birds present about the immediate neighborhood and changing the specimens from month to month as the winter birds depart and the migrants arrive from the south. This narrows down the task of identification to the species most likely to be seen at the time and eliminates many confusing possibilities.

The artist Mr. E. J. Sawyer is to be congratulated upon the accuracy of his figures for in spite of their small size—there are sometimes over 40 on a page— he has presented characteristic poses for the most part, while no important detail of color seems to have been overlooked.

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[1]What Bird Is That? A Pocket Museum of the Land Birds of the Eastern United States arranged according to Season. By Frank M. Chapman. Curator of Birds in the American Museum of Natural History and Editor of 'Bird-Lore.' With 301 Birds in Color, by Edmund J. Sawyer. D. Appleton and Company, New York and London, 1920. 12mo., pp. i–xxvi, 1–144, 8 color plates. Price $1.25 net.

Dr. Chapman's text is admirable and the whole conception of the work is another illustration of his ability to feel the pulse, as it were, of the bird loving public and provide what they need. The several line cuts which are scattered through the text might well have been omitted as they have not come out very satisfactorily on the rough surfaced paper, that of the Red-shouldered Hawk intended to illustrate the barred tail showing this appendage solid black.

The scientific nomenclature wisely follows that of the A. O. U. 'Check-List' and does not, like certain recent publications—even some issued by the Biological Survey, attempt to be up to date by using names not yet considered by the A. O. U. Committee and which the popular reader cannot find in the books with which he is familiar. If we do not follow a standard nomenclature in works intended for the general public we had better omit scientific names entirely.

In his English names Dr. Chapman also follows the 'Check-List' with two notable exceptions. Water-Thrush appears with the prefix "Northern" and Crossbill with that of "American." The abbreviated names have never met with favor and are ambiguous as there is another Water-Thrush and two other Crossbills. While we heartily endorse "Northern Water-Thrush" we prefer "Red Crossbill" which has been suggested by several writers, and trust that the Committee may adopt these changes in the next edition of the 'Check-List.'

We heartily recommend Dr. Chapman's little book to those desiring to name the birds they see, as probably the best pocket guide that has yet appeared.—W. S.

Horsfall on the Habits of the Sage Grouse.[1]—In 'The Auk' for 1900, Mr. Frank Bond has an article and an original drawing illustrating the nuptial performance of the Sage Cock. He corrects Dr. Newberry's statement that the bird drags its wings Turkey-like and describes in detail a process of bending over and pushing the distended breast sacks over the ground, thus producing the wearing away of the feathers on these parts, something that was not previously explained.

Those who attended the A. O. U. meeting in New York in November, 1919, and saw Mr. W. L. Finley's motion pictures of these birds in action were surprised to see that Mr. Bond's account is apparently as much in need of correction as was Dr. Newberry's and that the bird's breast is held high and never touches the ground at all, the edges of the wings being rubbed over it when the sacks are distended. Mr. Horsfall who accompanied Mr. Finley now describes the activities of the mating birds and presents several sketches and a color plate to illustrate the successive stages of the performance. His account of the wearing away of the breast feathers is however by no means as clear and explicit as might be desired.—W. S.

[1] Zoologica. Scientific Publication of the N. Y. Zool. Soc.

Kirke Swann's 'Synoptical List of the Accipitres.'[1]—Part IV of this work brings it to a conclusion and from the preface which accompanies it we learn that it is largely based upon the late Dr. Bowdler-Sharpe's 'Catalogue of the Accipitres in the British Museum,' the author's annotated copy with his additions having been accessible to Mr. Swann; and also upon Mr. W. L. Sclater's manuscript list of the specimens in the Museum. While the author uses subspecies extensively he does not seem to recognize intergradation as the criterion upon which they must be distinguished from species since he recognizes three 'species' of our American Sparrow Hawks, all of which are usually regarded as subspecies of *sparverius*.

He also considers that the dark Gyrfalcons which visit Canada in winter as young of *F. rusticolus candicans* rather than true *rusticolus*.

While Mr. Swann's little work summarizes our present systematic knowledge of the Accipitres it seems to indicate that much has still to be accomplished before we are prepared to satisfactorily monograph the group.—W. S.

Bibliography of British Ornithology.[2]—The third part of the 'Biographical Bibliography of British Ornithology' by Messrs. Mullens, Swann and Jourdain contains the contributions to county ornithology from Middlesex to Surry. One will gain some idea of the extent of the literature relating to the birds of the English counties when he finds that for Norfolk alone the authors have listed 600 titles, while the number of additions each year is constantly increasing. Few of our states can show such a bibliography while many of our counties are without any ornithological notes whatever. This work serves as an excellent illustration of the extent of intensive study of birds in Great Britian and the vast number of persons who are interested and capable of publishing local notes of value. Part four completes England and begins Wales.—W. S.

Brook's 'The Buzzard at Home.'[1]—This little brochure is entitled "British Birds Photographic Series" and is apparently the first of the series. It consists of twelve excellent half-tone reproductions of photographs of the European Buzzard, its nest and young, with fourteen pages

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[1] A Synoptical List of the Accipitres (Diurnal Birds of Prey). Part IV. Falconidae and Pandiones. By H. Kirke Swan. London: John Wheldon & Co., 1920. Price 4s.

[2] A Geographical Bibliography of British Ornithology from the Earliest Times to the end of 1918. Arranged under Counties, being a Record of Printed Books, Published Articles, Notes and Records Relating to Local Avifauna. By W. H. Mullens, H. Kirke Swann and Rev. F. R. C. Jourdain. Witherby & Co., 326 High Holborn, London. 1920. Part 3, 193–288; Part 4, 289–384. Price 6s. net. per part.

[1] The Buzzard at Home. By Arthur Brook, with 12 photographic plates. London: Witherby & Co. Price 3/6.

of text by Mr. Brook describing the habits of the birds and his experiences in photographing them. The whole forms an attractive and interesting contribution to the life history of this hawk, likely to lead others into the field of bird photography and the study of the living birds in which the author seems to be an adept.—W. S.

The Nebraska Waterfowl and their Food.[2]—This contribution from the Biological Survey consists of two parts, 'Waterfowl in Nebraska, by Dr. Harry C. Oberholser and 'Wild Duck Foods of the Sandhill Region of Nebraska' by W. L. McAtee.

The sandhill region of Nebraska, containing as it does innumerable small lakes and marshes is a natural resort of various species of waterfowl and the object of the present publication is to place those who may be interested in the conservation of these birds, data on their relative abundance and habits and the methods by which this region may be made more attractive for them. Dr. Oberholser visited most of the lakes and obtained a wealth of information regarding the birds which inhabit them as well as data on past and present conditions there. He has given lists of the species found on the more important lakes and an annotated list of all of the species observed, their habits, relative abundance, etc., together with warnings as to the dangers attending the draining of the lakes in the consequent extermination of the wildfowl.

Mr. McAtee has reported upon collections of the marsh vegetation gathered about a number of the lakes, pointing out the relative value of the various plants as duck food and suggesting other species which would probably thrive there if introduced.

As a whole the pamphlet, which we trust may have a wide circulation in the region of which it treats, gives to the sportsmen of Nebraska all of the data required in any effort that they may be inclined to make for the conservation of this natural breeding ground for the ducks. And in view of the rapid destruction of the former breeding grounds farther north, it is none too soon to take every opportunity to save all such regions as this, which still remain in the United States, from thoughtless destruction. It would be a fine thing if the Legislature of Nebraska would make this lake region a permanent State preserve for the breeding of waterfowl, which could apparently easily be done without any inconvenience to the grazing or farming interests as it is not suitable for either.—W. S.

Bartsch on the 'Bird Rookeries of the Tortugas.'[1]—Among the contributions to the 'Annual Report' of the Smithsonian Institution for

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[2] Waterfowl and Their Food Plants in the Sandhill Region of Nebraska. Part I. Waterfowl in Nebraska. By Harry C. Oberholser, Assistant Biologist. Part II. Wild-Duck Foods of the Sandhill Region of Nebraska. By W. L. McAtee, Assistant Biologist. Bulletin 794, U. S. Department of Agriculture. March 23, 1920, pp. 1–77, plates I–V.

[1] The Bird Rookeries of the Tortugas. By Paul Bartsch. Smithsonian Report for 1917, pages 469–500 (with 38 plates). Washington, 1919.

1917, which has recently appeared, is a paper on 'The Bird Rookeries of the Tortugas' by Paul Bartsch. Dr. Bartsch is familiar with the islands and gives us an account of their physical features from his personal observations and a series of thirty-eight plates from original photographs of the bird colonies. The Tortugas are by no means unknown ground to the ornithologist for from the time of Audubon's visit in 1832, many bird students have visited them and described their bird life; while it was on these islands, that Dr. J. B. Watson conducted his now famous experiments on the homing of wild birds. From all of these writings, Dr. Bartsch has compiled interesting accounts of the various species of birds which inhabit the group, adding personal observations as well, and concluding with a table of the species observed or collected by such ornithologists as have visited the islands since 1857. The pamphlet makes a handy summary of our knowledge of the bird life of this interesting island group. Dr. Bartsch has also published in diary form some observations on the birds of the Florida Keys and southern Florida in the 'Year Book of the Carnegie Institution' for 1919, pp. 205–210, including notes on 97 species.—W. S.

Bangs and Penard on 'Two New American Hawks.'[1]—In studying the birds of prey in the Lafresnaye collection at the Museum of Comparative Zoology the attention of the authors was attracted to the existence of two races of *Accipiter superciliosus* and the form inhabiting Costa Rica southward to Colombia has been named *A. s. exitiosus* (p. 45) type from Carrillo, Costa Rica. The difference in the size of the White-tailed Kites from the United States and Middle America as compared with those of South America has also prompted the naming of the former as new, and it appears as *Elanus leucurus majusculus* (p. 47), type from San Rafael, California. The difference in the average wing length is only 15 mm., however, and the individual specimens overlap by 10 mm.—W. S.

Kuroda on New Japanese Pheasants.[2]—In this review of the Japanese pheasants of the genus *Phasianus*, printed in Japanese, the descriptions of the new forms are also given in English. These are *P. versicolor robustipes* (p. 299), Sado Island; *P. v. kiusiuensis* (p. 300), Kiusiu Island; *P. v. tanensis* (p. 300), Tanegashima Island; *P. soemmerringi subrufus* (p. 303), warmer districts on the Pacific side of Hondo, type from Oisan, Prov. Suruga; *P. s. intermedius* (p. 304). Shikoku and southwestern Hondo, type from Yunoyamamura, Prov. Iyo.—W. S.

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[1] Two New American Hawks. By Outram Bangs and Thomas Edward Penard. Proc. N. E. Zool. Club, Vol. VII, pp. 45–47. February 19, 1920.

[2] Descriptions of Five New Forms of Japanese Pheasants. By Nagamichi Kuroda. Dobutsugaku Zasshi (Zoological Magazine) Vol. XXXI, 1919, pp. 309–312.

Freeman's 'Bird Calendar for the Fargo Region'[3]—As an aid to local bird students Mr. Freeman has presented in the April, 1919, issue of the 'Fargo College Bulletin' a list of the birds of the vicinity of Fargo, N. Dakota, with the dates of arrival or of occurrence taken mainly from his personal records. While the author makes no claim for completeness and solicits additional data, the fact that he has been able to include 181 species, hows that his little list forms an important contribution to the published literature of the birds of North Dakota. The species are arranged in systematic order with annotations. Let us hope that this excellent start may be the forerunner of a more extensive report later on, when the co-operation for which the author asks will undoubtedly add a number of species and further data of interest.—W. S.

Grinnell on the English Sparrow in Death Valley.[1]—Dr. Grinnell on a recent trip to Death Valley was surprised to find a colony of English Sparrows established at the Greenland Ranch, 178 feet below sea level. He points out the fact that so far, during a period of about fifty years, no differentiation from the original English stock has been detected in the birds reared in this country. The fact remains, however, that the conditions under which the birds live have perhaps not differed materially from those prevalent in England. Now, however, we have a colony of them established in a spot characterized by probably the highest temperature and lowest relative humidity of any place in North America, and the presence of the birds at this point constitutes, as Dr. Grinnell says, an experiment actually under way which should show how permanent are the subspecific characters which separate this bird from the related European forms. The negative evidence obtained from a study of the bird in other parts of the United States which upholds the permanency of these characters seems to Dr. Grinnell to suggest that they are really germinal rather than somatic.

In his apparent haste to be up-to-date, Dr. Grinnell has adopted Kleinschmidt's separation of the English race from that of the continent, although neither Witherby nor Stresemann has been able, with abundant material, to satisfactorily distinguish them. This latter fact seems to emphasize the remarkable permanency of the characters of this bird. Does it not seem that some forms are very much more plastic and sensitive to environmental conditions than others and that *Passer domesticus domesticus* is one of the most difficult to change? Dr. Grinnell's problem is an interesting one and in the same connection would it not be in order to repeat Mr. Beebe's experiment on the effect of humid atmospheric con-

[3] A Bird Calendar of the Fargo Region. By Daniel Freeman. Fargo College Bulletin, XV, No. 1, April, 1919, pp. 9–16.

[1] The English Sparrow has Arrived in Death Valley: An Experiment in Nature. By Joseph Grinnell. American Naturalist, Vol. LIII, Sept.–Oct., 1919, pp. 468–473.

dition on the coloration of the Ground Dove? That single experiment is quoted more than perhaps any other in exploiting the evanescent character of subspecific differences and so far as we know it has never been checked nor has very serious consideration been given to food or a variety of other factors that may have entered into it.—W. S.

Rowan and Others on the Nest and Eggs of the Common Tern.[1] The egg collector who applies for a collecting permit on the ground that he is engaged in "scientific research" would do well to consult this paper in order to appreciate the opportunity for real scientific research that is offered in the study of birds eggs. Only expert mathematicians will be able to follow intelligently the computations and calculations which are presented but the results and hypotheses are of interest to all. Briefly stated the work here reported consisted in the measurement of some 800 clutches of Tern's eggs with notes on the character of the markings and shade of color of the eggs and the nature and location of the nests in which they were deposited. With these data it was possible to prepare tables and to determine the probable correlation between certain measurements and colors, or between measurements and colors and character of nests, as well as the cause or meaning of differently colored eggs in the same nest. The work was accomplished by three field workers, one reporter and three tabulators and computers, and was in reality a continuation of a similar study carried on in the previous year. The final results show that the eggs averaged larger in 1914 than in 1913 and exhibited more uniformity, both due apparently to the bad season of 1913, when the very young and very old birds may have perished, and to the exceptionally favorable year of 1914, when food was unusually abundant.

In regard to shape of egg and character of nest it was found that the more nearly spherical eggs were in the most careless, and loosely constructed nests, while the denser brown and lighter green eggs were more often in nests without much material, i. e., mere hollows in the ground.

The resemblance of the color pattern to the nest brings in all sorts of complications. With eggs as variable as those of the terns it is inconceivable that the bird has, when building her nest, any conception of what her eggs are going to be like. As the authors say such an instinct would be conceivable in the case of a species laying uniform eggs and building a specific type of nest, but not in the present case. The fact that the terns were frequently found to begin laying before they gathered any nest materials would raise the possibility of their adapting the materials to the character of the eggs. Then comes the possibility of there being two

[1] On the Nest and Eggs of the Common Tern (*S. fluviatilis*). A Comparative Study. W. Rowan, E. Wolf, and the late P. L. Sulman, Field Workers; Karl Pearson, Reporter; E. Isaacs, E. M. Elderton, and M. Tildesley, Tabulators and Computers. Biometrika, Vol. XII, Nos. 3 and 4, November 26, 1919, pp. 308–354, plates II–VI.

types or genes of terns, one laying green eggs and the other brown. This would, however, necessitate mating always within the gens or the transmission of the egg coloring mechanism through the female only. The former is hardly conceivable while the latter is contrary to the experience of breeders that female characters are transmitted through the males. This theory too would require some Cuckoo-like females laying in the nests of other individuals to produce the varied sets of green and brown eggs in the same nests, which for various reasons does not seem credible. The most likely theory seems to be that any female tern may lay either a green or a brown egg but that with the physiological exhaustion incident to successive egg laying the nature of the pigment of the egg laying glands changes. This would explain the undoubted fact shown by the tables that the number of green eggs increases with the number in the clutch, there being 74 brown to 63 green in clutches of a single egg; 153 brown to 203 green in clutches of two; and 216 brown to 393 green in clutches of three. There are a number of admirable photographic plates showing the birds and nests and a color plate illustrating extreme phases of egg coloration. The paper is well worth careful study by those interested in the theories upon which it touches or in mathematical methods in research—W. S.

Report of the National Zoological Park.[2]—In his annual report as superintendent of the National Zoo, Mr. Hollister presents a number of interesting statistics. The number of species of birds in the collection is 190, exactly the same as last year, although the individuals are slightly more numerous. The death of the female Trumpeter Swan which had just been successfully mated with the male loaned by Mr. R. Magoon Barnes was a calamity, and until other specimens of this disappearing species can be secured will check any attempt to perpetuate it. Several birds, long residents of the garden, also died during the year, including a Crowned Hawk Eagle (*Spizaetus coronatus*), a resident for nearly 18 years; two tree ducks (*Dendrocygna arcuata*) which had lived there for 15 years and a Snowy Egret for eleven years.—W. S.

Ornithology of the Princeton Patagonian Expedition.—Part IV of this sumptuous work appeared in July 8, 1915. Like the preceding parts it is the work of the late Dr. R. Bowdler Sharpe and W. E. D. Scott, their manuscripts having been published with only slight changes in nomenclature and minor details. The editing has been done by Dr. Witmer Stone who will prepare the text for the remainder of the work as the manuscripts of the late authors were only completed to the end of the Accipitriformes. The present part covers pages 505–718, and includes the Pelecaniformes, Accipitriformes and Strigiformes.

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[2] Report of the Superintendent of the National Zoological Park for the Fiscal Year ending June 30, 1919. Ann. Rep. Smithson. Inst. for 1919, pp. 68–81, 1920.

The text is very full with extended quotations from various writers on the birds of the region and there are 116 text figures of heads, feet, wings, etc., from line drawings by Bruce Horsfall.—J. A. G. R.

Nicoll's 'Handlist of the Birds of Egypt.'[1]—This well prepared work is an annotated list of 436 species of birds occurring in Egypt north of Wadi Halfa, the nothernmost town of the Sudan. It is based upon Mr. Nicoll's thirteen years' experience in studying the birds of the country and upon a collection of about 4000 specimens obtained during that time and now deposited in the Zoological Museum at Giza.

The English and scientific name of each species is given, the latter being the "most suitable and easily understood" of the several that may be current. Then follows a statement of the relative abundance and time of occurrence, and a short concise description. There is also a reference to Shelley's 'Birds of Egypt' if the species is mentioned in that work, though we notice that Mr. Nicoll has added quite a number not found by that author. A few species entered in previous lists but not verified he has wisely omitted, quoting in this connection the apt saying that "What's hit is history; what's missed is mystery." An Appendix gives such Arabic names as have been applied to the Egyptian birds. The illustrations consist of 31 plates, most of them half-tones of skins of Chats and Warblers while the others are rather crudely tinted figures of a number of species. The book is a publication of the Ministry of Public Works issued by the Government Press at Cairo to meet a demand for information upon the identity of the native birds, which was especially urgent during the period of the war, when many visitors were in the country. Mr. Nicoll is to be congratulated upon an excellent piece of work both for the instruction of the public and for handy reference of the ornithologist who desires an up to date list of the birds of Egypt.—W. S.

Sachtleben on Goldfinches.[2]—This paper is an elaborate discussion of the geographic forms of the Black-headed Goldfinches of Europe and Africa. Eleven races are recognized by the author and long lists of specimens with measurements are presented, with a full discussion of synonymy and relationship.

Names are available for all of the forms recognized, though we notice that one of them, *Carduelis c. balcanica*, was named by the author in a previous paper in the 'Anzeiger Ornith. Gesellsch. Bayern' for February, 1919.—W. S.

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[1] Hand-List of the Birds of Egypt. By M. J. Nicoll, F. Z. S., M. B., O. U. Assistant Director, Zoological Service. Publication No. 29. Ministry of Public Works, Cairo, Egypt. Government Press, 1919, pp. i–xii, 1–119, pll. 1–31. Price: P. T. 15.

[2] Die geographischen Formen des schwarzkopfingen Distelfinken. Von Dr. H. Sachtleben. Arch. f. Naturg. 84 Jahrgang. February, 1920.

Carter's 'Shooting in Early Days.'—In a neatly printed little pamphlet issued privately by Mr. Charles Morland Carter he describes his experiences as a gunner beginning about the year 1864. His early reminiscences deal with New England and are full of association with William Brewster and Ruthven Deane, two of his boyhood acquaintances. Later come his experiences in Iowa, Kansas, Oklahoma and other portions of the middle West.

Besides the interest that attaches to a personal narrative of this kind there is much of value to the ornithologist in the accounts of the Quail and Woodcock shooting of those times and the several mentions of Passenger Pigeons, especially of a trap shooting contest at Concord Junction in 1872, in which Deane and Brewster participated and in which the birds were 200 Passenger Pigeons purchased for the occasion.

If other sportsmen whose experiences date back to the sixties, would follow Mr. Carter's example we should have preserved many valuable records of the early abundance of game birds which otherwise will be lost forever.—W. S.

Recent Publications on Conservation and Education.—The April 1920, number of the 'Nature Study Review'[1] is a bird-study number containing many short articles on various species. The most noteworthy contribution is by Anna B. Comstock: 'Suggestions for a Graded Course in Bird Study' which will be welcome to many teachers. The suggestion is made of collecting one or more old nests and mounting them in cardboard boxes beside which may be mounted a standard outline drawing of the species colored by the student. The use of colored drawings instead of mounted birds or skins will soon become a necessity as the supply of old birds in museums, etc., becomes exhausted.

Mr. John H. Wallace's 'Alabama Bird-day Book'[2] is as usual an admirable assistant to teachers engaged in conducting Bird-Day exercises. This year's issue contains a special article by E. H. Forbush on the migration of North American birds into the countries to the south of us and the importance of securing co-operation there for their protection as has been accomplished with Canada on the north.

Miss Althea R. Sherman has an interesting 'Historical Sketch of the Park Region about McGregor, Iowa, and Prairie Du Chien, Wisconsin'[3] in 'Iowa Conservation' Vol. III. Nos. 1 and 2, in which she advocates the establishment of a park or reservation on the Iowa side of the Mississippi, opposite the one secured by Senator Robt. Glenn at the mouth of the Wisconsin River.

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[1] Shooting in the Early Days, from 1863 to 1919. By Charles Morland Carter, St. Joseph, Missouri. December, 1919. Printed for Private Distribution. Grogg Printing Co., pp. 1–38.

[1] Nature Study Review. Ithaca, N. Y.

[2] Alabama Bird-Day Book, Dept. of Game and Fish. Montgomery, Alabama.

[3] Iowa Conservation, Vol. III.

'Fins, Feathers and Fur'[4] for March, 1920 contains an appeal from Harry J. LaDue for the extermination of "vermin" by the sportsmen. Everything which may destroy game is today "vermin," but the destruction of all this wild life may so upset the balance of nature that the game will go too before we realize the complicated interrelation between wild creatures with which we are interfering. Such work should be done only after most careful consideration by those who understand the problem. The statement that "the Crow is now everywhere regarded as one of the great menaces to song and game birds" is hardly supported by the reports. It is destructive locally to certain crops and should be dealt with accordingly, but in other places and other seasons it is unquestionably beneficial. The hue and cry against the Crow which has lately spread over the country seems to have been inspired by certain manufacturers of guns and ammunition more than by anyone else. 'Bluebird'[5] in its March issue takes up the cudgels for the Crow just as earnestly as the previous journal denounces him.

'California Fish and Game'[6] tells of the arrest in that state of violators of the Migratory Bird Treaty all of whom were fined substantial amounts. There is also an account of the efforts to rid San Diego of the English Sparrow which promises to be successful as the number now remaining is estimated not to be over 100. The Illinois Audubon Society has published another of its attractive 'Bulletins'[7] for the spring of 1920, which contains an admirable commentary on the State game laws, and many notes and reports on bird study.

A Fascicle of Papers on British Economic Ornithology.—All of the articles here reviewed are by Dr. Walter E. Collinge who is giving more attention to economic ornithology than any other of his countrymen. Two of the papers were published in the new 'Journal of the Wild Bird Investigation Society,' Dr. Collinge, editor, which is devoted to the preservation and to all other interests of British birds. One[1] of these is general in nature, calling attention to the close relationship of birds to the welfare of agriculture, the greater attention paid to this matter in other countries and the desirability of doing more work on the subject in Great Britain. The Rook and the Pheasant are discussed in some detail as examples, respectively, of destructive and beneficial species, and a tabulation is given of the principal food items of 22 species of British birds which shows "that the sum total of their activities is distinctly in favor of the farmer and fruit-grower." The paper concludes by pointing out the great importance at the present time of aiding British agriculture

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[4] Minnesota Game and Fish Dept., St. Paul, Minn.
[5] Bluebird, 1010 Euclid Ave., Cleveland, Ohio.
[6] California Game and Fish Commission, Sacramento, Cal.
[7] Illinois Audubon Society, 1649 Otis Building, Chicago, Ill.
[1] Wild Birds: Their Relation to the Farm and the Farmer. Op. cit. Vol. 1, No. 2, March, 1920.

in every way, and in making a special plea for investigations in economic ornithology upon which, alone, rational treatment of birds can be based.

Two of Dr. Collinge's articles relate to fish-eating birds, in one of which[2] it is pointed out that past statements on the matter have not been based on careful investigation, and preliminary results are announced of a study begun under the auspices of the Carnegie Trust for the Universities of Scotland. More than 3000 specimens representing 14 species have been examined, and the striking results are that "fish does not constitute the bulk of their food or anything like the major portion of it," that only two species, the Cormorant and the Shag, are purely fish-eaters, that only one other, the Common Tern preys chiefly on fish, and that 11 of 14s pecies consume fish to the extent of less than 20 percent of their food. The diet of the Black-headed Gull is treated in some detail, with a conclusion favorable to the bird.

The Kingfisher is the subject of the second paper[3] on fish-eating birds; the bird's habits are sketched and a report is presented on the examination of stomach contents and food remains taken from nesting burrows. Averaging results from both sources, Dr. Collinge shows that 61.5 per cent of the Kingfisher's food consists of fish, 12.52 of which is trout. Stated in economic terms, 13 per cent of the birds food is taken at man's expense, 16 per cent contributes to human welfare and 71 per cent is neutral. An especially interesting feature of the analyses is the close agreement between the proportions of the principal items of food in the material taken from stomachs and in the disgorged indigestibles from the nest. A table of percentages exhibiting this relationship follows:

	From stomachs	From nests
Fish	63.5	59.5
Mollusks	4.0	4.0
Tadpoles	3.5	5.5
Injurious Insects	16.5	15.5
Neutral Insects	6.0	4.5
Crustaceans	3.5	6.5
Worms	1.5	1.5

Thus it is quite evident that digestion, (at least so far as it is carried by pellet-disgorging species) does not materially alter the relative volumes of food items. The reviewer believes that this condition extents to excrement also, at least in the case of nestlings, and elsewhere[4] he has urged study of this evidence as to food-habits. The particular importance of Dr. Collinge's findings lies in the validity they give to analyses of materials which can be collected and studied without destruction of bird life.

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[2] Sea-birds: Their Relation to the Fisheries and Agriculture. Nature, April 8, 1920, reprint, 7 pp.

[3] The Kingfisher—Is It Injurious? Illustrated Sporting and Dramatic News, March 6, 1920, reprint, 1 galley.

[4] Bul. 32, U. S. Biological Survey, 1908, pp. 23–24.

Dr. Collinge made good application of this method in his report[5] on the Barn Owl, founded on the contents of 12 stomachs and more than 300 pellets. The investigation like all others relating to this species is emphatically in the bird's favor.

A study of 'The Food of the Nightjar (*Caprimulgus europaeus* Linnaeus)'[6] is prefaced by a statement that this species had been greatly diminished in numbers by persecution because of its being considered a hawk and on account of general prejudice and superstition due to its nocturnal, hence little-known, habits. This is unfortunate as the species is almost exclusively beneficial. The case parallels that of the American Nighthawk and Dr. Collinge's conclusion like that of bird-lovers in this country, is that these birds should receive the maximum of protection.—W. L. M.

The Ornithological Journals

Bird Lore. XXII, No. 2. March–April, 1920.

A Bird Watcher in France. By Dr. Herbert R. Mills.

Field Sparrows. By F. N. Whitman.—Some excellent photographic illustrations of the nest and young

A Surprised Crow. By Verdi Burtch.—An amusing set of photographs.

An Unusual Horned Lark Family. By Frank Levy.—Eight eggs all of which hatched.

Migration Group Chart. By S. A. Hausman.—A good diagramatic representation of residents, summer residents, etc.

The Plumages of North American Birds. By F. M. Chapman, Color plate by L. A. Fuertes.—The Arizona, Florida, California and Santa Cruz Jays.

Dr. A. A. Allen in the School Department and the Editor on the preceding page dwell upon the importance of accuracy in observation. The latter suggests the desirability of writing down an accurate description of all parts of the bird that may be under observation so as to compel the observer to gain a complete idea of what he sees while Dr. Allen urges that teachers do not hesitate to question the accuracy of children's identifications when they would seem to be unlikely. Too much emphasis cannot be placed upon the importance of this matter. The carelessness is not limited to children but to many of those whose observations are being published as part of the records of the National or State governments or of clubs and societies and we are forced to rely upon the rigorous pruning and questioning of an editor to save us from a mass of absolutely worthless records. The plan practiced by certain careful observers of

[5] Some remarks on the food of the Barn-Owl (*Strix flammea* Linn.), Journ. Wild Bird Investigation Soc., Vol. 1, No. 1, Nov. 1919, pp. 9–10.

[6] Journ. Ministry Agr., Vol. 26, No. 10, Jan. 1920, pp. 992–5.

never recording a bird that both have not seen and satisfactorily identified is excellent though of course it can only be practiced by two observers working always together. Confirmation of other observers is an excellent feature and the person who always works alone and always sees the largest number of species cannot help but arouse a doubt as to whether his enthusiasm has not carried him away.

Bird-Lore. XXII, No. 3. May–June, 1920.

Spring Thunder. By H. E. Tuttle.—Drumming of the Ruffed Grouse, with photograph of bird in action.

Some Robins' Nests. By W. F. Smith.—Curious locations, on the hub of a wagon, a stove-pipe, etc.

A Much-used Robin's Nest. By D. D. DuBois.—Six broods reared in the same nest during several successive years.

The educational leaflet deals with the Yellow-bellied Sapsucker with a plate by Sawyer and text by T. Gilbert Pearson. In the latter the author seems a little mixed in his migration dates; the swallows as a rule are early migrants in the autumn but the Swift instead of leaving with them as he states remains in the vicinity of New York about as late as does the Sapsucker.

Arthur A. Allen has an excellent article on bird song in which he adopts a scheme of notation somewhat like that advocated by A. A. Saunders in 'The Auk.' (1915, p. 173.)

An unfortunate newspaper article on a supposed Audubon collection of birds at Amherst College is reprinted in the Audubon department apparently without making any effort to determine its accuracy, while a line to Mr. Bangs, whose name appears in connection with the story, would have shown that, like many articles in the daily press, the whole thing was the result of some reporter's too vivid imagination.

The Condor. XXII, No. 2. March–April, 1920.

The Nesting Habits of the Alaska Wren. By Harold Heath.—Raises the interesting question as to the possible restocking of the island of St. George where the bird is found. The wrens are reported by natives to be abundant there some years and to disappear in others. As the Aleutian Islands, according to Oberholser, are populated by different races with the exception of Kodiak, then the repopulation must take place from this remote island, 700 miles away, but it is hardly conceivable that some representatives from the other nearer islands should not also come to the Pribilofs, if any such migration occurs. Mr. Heath prefers to think that one or more pairs have survived even in years when they seemed to have disappeared. In the winter of 1919, however, only a single pair of the birds could be found and it would therefore seem that the existence of the bird in the Pribilofs was precarious.

Autobiographical Notes. By Henry W. Henshaw. (Continued.)

Nesting of the Dusky Poorwill near Saugus, Los Angeles Co., California. By A. J. Van Rossem and J. H. Bowles.

Bryant Marsh Sparrow upon the Hills. By Jos. and J. W. Mailliard.

A Return to the Dakota Lake Region. By Florence M. Bailey. (Continued.)

Wilson Bulletin. XXXII, No. 1. March, 1920.

The Raptores of Nelson County, Kentucky. By B. J. Blincoe.

Notes on the Birds of Wakulla County, Florida. By John Williams (Completed in June number).

Bluebird Migrations. By Howard C. Brown.

A Synopsis of the Genus Thryomanes. By Harry C. Oberholser.—This revision recognizes the same races and species as the author's previous monograph of the genus with the addition of *T. albinuchus* (Cabot) placed in the genus by Mr. Ridgway, and the two races described by Grinnell, *T. b. catalinae* and *T. b. marinensis* with a new race, *T. b. ariborius* (p. 25) from Agassiz, B. C., which is said to range over the southwestern corner of British Columbia and adjacent Washington.

Wilson Bulletin. XXXII, No. 2. June, 1920.

List of Birds made during service in France and Germany. By C. C. Sanborn.

The Oologist. XXXVII, No. 3. March 1, 1920.

Bird Nesting Notes from Yates County, N. Y. By C. F. Stone.—Additional notes in May issue.

The Oologist. XXXVII, No. 4. April, 1920.

Bohemian Waxwings in Kansas. By P. B. Peabody.

The Oologist. XXXVII, No. 5, May, 1920.

Annotated List of the Birds of Brooke County, W. Va.—Anonymous.

Journal of the Museum of Comparative Oology. I, No. 3–4. March 31, 1920.—Like its predecessor this issue is largely devoted to articles by Mr. W. L. Dawson in exploitation of his Museum of Comparative Oology. There are, however, several special articles dealing with birds eggs, as follows:

An Oölogical Revision of the Alciformes. By W. L. Dawson.—This is a remarkable contribution in which the author first admits that he is not "deeply versed in the lore of taxonomy" and then states that the taxonomist is "all too easily satisfied with incomplete, or superficial evidence." Following this and some ridicule of the systematic worker he proposes that classification be based upon eggs alone. It is true that a knowledge of eggs is an aid to classification, and in certain groups has pointed to important relationships, just as have many other characters, but to insist upon using one character only, no matter what the character may be, is preposterous. There are resemblances between eggs that mean nothing from the phylogenetic point of view, just as there are resemblances in structure between birds which are only remotely related. Mr. Dawson's italicised "propositions" governing the matter we can hardly regard seriously.

Gaps in Our Knowledge of Eggs. By A. C. Bent.—Calls attention to certain species of North American birds the eggs of which are unknown or about which additional information is needed.

The Ibis. (11th Series), II, No 2. April, 1920.

List of the Birds of the Canary Islands, with detailed reference to the Migratory Species and the Accidental Visitors. Part VI. Appendix A–Appendix B. By D. A. Bannerman.

A Contribution to the Ornithology of the Island of Texel. By C. B. Ticehurst.

A List of the Birds collected in northern Saskatchewan and northern Manitoba by Captain Buchanan in 1914. By J. H. Fleming [published also in 'The Canadian Field Naturalist' for December, 1919].

Notes on South African Accipitres. By C. G. Finch-Davis.—Treats of habits and distribution.

A Review of the African *Dicruridae* in the British Museum. By D. A. Bannerman.

A Nominal List of the Birds at present known to inhabit Siam. By Count N. Gyldenstolpe.

On the Type Specimen of *Chloephaga inornata* King in the British Museum, and some further Notes. By F. E. Blaauw.—The type specimen is really a young *magellanica* so that *inornata* King becomes a synonym of that species while the Black-banded Goose reverts to the name *C. dispar*.

On a New Species of Bower-bird. By T. Carter and G. M. Mathews. *Chlamydera maculata nova* Mathews. Under certain contingencies not clearly explained, Mr. Mathews suggests that the form be renamed *C. maculata carteri* (p. 499).

Bulletin of the British Ornithologists' Club. No. CCXLVIII. March 4, 1920.

Largely devoted to an address by E. C. Stuart Baker on 'The Value of Subspecies to the Field Naturalist.' Dr. Hartert, in commenting upon the address, stated that he objected to making supposed intergradation between two forms a criterion of the subspecies and cited the case of island races which were formerly regarded by American ornithologists as full species because of the impossibility of intergradation but which now they regard as subspecies. This action as we understand it has not been a change of opinion but rather the recognition of another kind of intergradation, *i. e.*, the overlapping of characters. While we do not think that the actual existence of intergrades should be required to establish a form as a subspecies, we nevertheless cannot admit subspecific relationship between forms separated by great distances and by other species of the genus, as for instance Dr. Hartert's listing of the Carolina Chickadee (*Penthestes carolinensis*) as a subspecies of an old world species.

The following new forms were described:

By Dr. Van Someren: from East Africa and Uganda: *Cercomela turkana* (p. 91) Turkana country, west of Lake Rudolf; *Eremomela badiceps turneri* (p. 92) Yala River; *E. elegans elgonensis* (p. 92) S. Elgon; *Sylvietta isabellina macrorhyncha* (p. 92) Tsavo; *Dryodromus rufifrons turkanae* (p. 93) Meuressi; *Prinia mistacea immutabilis* (p. 93) Nakuru Lake; *Hedydipna platura*

karamojoensis (p. 93) Karamojo; *Cinnyris habessinicus turkanae* (p. 94) Lake Rudolf; *Anaplectes jubaensis* (p. 94) Juba River; *Charitillas kavirondensis* (p. 95) Kakamega Forest; *Dicrurus elgonensis* (p. 95) Lerundo; *Crateropus melanops clamosus* (p. 95) Naivasha; *Campothera teniolaema barakae* (p. 96) Baraka.

By J. D. LaTouche: *Petrophila solitaria magna* (p. 97) a large race of *P. s. manilla* without type locality or mention of type specimen.

By A. DeCarle Sowerby: *Uragus sibiricus fumigatus* (p. 99) Tataschew, southern Siberia.

Bulletin of the British Ornithologists' Club. No. CCXLIX. March 31, 1920.

G. M. Mathews described six new forms of Australian birds.

C. Chubb proposed: *Dendrocinclopa* (p. 107) new genus; type *D. guianensis* Chubb; *Vavasouria* (p. 107), type *Ampelis nivea* (Bodd.); *Calloprocnias* (p. 107) type *Casmarhynchus tricarunculatus* (Verr), also *Rhynchocyclus sulphurascens examinatus* (p. 108) Bartica, British Guiana; *R. poliocephalus inquisitor* (p. 108) Bartica; *R. flaviventris gloriosus* (p. 108) Quonga, British Guiana; *R. f. collingwoodi* (p. 109) Trinidad.

Bulletin of the British Ornithologists' Club. No. CCL. April 30, 1920.

E. C. Stuart Baker presented a revision of *Prinia sylvatica* recognizing three races and of *Pericrocotus peregrinus* and *P. brevirostris* recognizing five forms of the former and four of the latter. The following are described as new: *P. p. vividus* (p. 114) Attaran River, Burma; *P. p. pallidus* (p. 115), Larkhana, Sind; *P. p. saturatus* (p. 115), W. Java; *P. p. styani* (p. 117), Sechuen; and *P. speciosus fohkiensis* (p. 116), Yamahan, Fohkien.

H. F. Witherby publishes some notes on birds from southern Spain showing among other things that the true *Cisticola cisticola cisticola* must be restricted to this country and north Africa and proposes for the bird of the rest of Europe, Asia Minor and Egypt, *C. c. harterti* (p. 120). Platea, Greece.

An account of the seventh oological dinner is appended.

British Birds. XIII, No. 10. March, 1920.

Ornithological Notes from Norfolk for 1919. By J. H. Gurney.—Includes an account of the destruction of Rooks during migration.

On Some Results of Ringing Certain Species of Birds. By H. F. Witherby. (Continued in April.)

British Birds. XIII, No. 11. April, 1920.

Breeding of the Knot in Grinnell Land. By Col. H. W. Fielden.—Eggs found by the late Admiral Peary on June 26, 1909.

The Dutch and British Little Owls. By H. F. Witherby.—*Athene noctua mira* (p. 283) Limburg, Holland, is described as new; being darker than the bird from Germany, etc. The British bird was introduced from Holland.

Migration Notes from Bardsey Island, October, 1919. By F. W. Headley.

British Birds. XIII, No. 12. May 1, 1920.

The Common Gull Breeding on Dungeness Beach. By N. F. Ticehurst.—Excellent half-tones from photographs of bird at nest.

Some recent results of Ringing Certain Species of Birds. By H. F. Witherby.

Avicultural Magazine. XI, No. 2. February, 1920.

Notes on the Birds of the Balearic Islands. By Philip Gosse.

Avicultural Magazine. XI, No. 3. March, 1920.

Birds in the National Zoological Gardens at Washington. By R. W. Shufeldt.

Avicultural Magazine. XI, No. 5. May, 1920.

The Cry of Owls. By A. Trevor-Battye.

Cockatoo-Catching in Victoria. By Thornton Skinner.

The South Australian Ornithologist. V, Part 1. January, 1920.

The Birds of the Mallee. By Edwin Ashby.

New Subspecies of Emu Wren. By F. E. Parsons.—*Stipiturus malachurus halmaturina* (p. 15) Kangaroo Island.

Ornithological Nomenclature: Its History and Reason. By G. M. Mathews.

A Fortnight on Kangaroo Island, S. Australia. By J. N. McGilp.

Tori. Bulletin of the Ornithological Society of Japan. II, No. 8. July, 1919. [In Japanese]

On Some Specimens of Birds from Saghalin in the Sapporo Museum. By T. Momiyama.—*Cichloselys sibircus davisoni, Locustella ochotensis, Parus ater pekinensis, Chelidon rustica gutturalis, Surnia ulula pallasi.*

On the Migration of Some Common Species of Birds in the Vicinity of Seoul, Corea. By Y. Kuroda and J. Miyakoda.

On the Habits and Sexual Differences of the Himalayan Cuckoo. By M. Kawaguchi.

Migration and Habits of Swallows in Shikoku. By Y. Enomoto.

Notes on Some Birds from Iruma-gun Saitama. By T. Momiyama and M. Nomura. List of 132 species.

Tori. II. No. 9. April, 1919. [In Japanese.]

Notes on and Descriptions of the Flower-peckers of Formosa. By N. Kuroda.—*Dicaeum minullum uchidai* new race from Horisha, Nanto District. [This paper reprinted in English.]

On Some Birds from the Quelpart Island, Corea. By T. Mori.—Forty-nine species.

On the Sexual Differences of *Pseudotadorna cristata* Kuroda. By N. Kuroda.—[*Tadorna casarca* × *Querquedula falcata?*]

Notes on *Chelidon rustica gutturalis* and *C. daurica nipalensis.* By Y. Kanetsune.

Description of a New Subspecies of *Aplonis* from the western Micronesia. By T. Momiyama.—*A. kittlitzi kurodai* subsp. nov. Yap Island, western Carolinas. (This paper in English.)

Revue Francaise d'Ornithologie. No. 131. March, 1920. [In French.]

On the Song of Birds in Winter. By H. Darviet.

An Amateur Bird Guide for One Visiting Africa. By Dr. Millet-Horsin. (Continued.)

Inquiry on the Disappearance of the Sparrow. By A. Menegaux. (Continued in April.)

Revue Francaise d'Ornithologie. No. 132, April, 1920. [In French.]

Contribution to a Study of the Forms of *Bubo ascalaphus* of North Africa. By Louis Lavauden.

On the Bird Producers of the Peruvian Guana. By J. Berlioz. (Abstract of Coker's Report.)

L'Oseau. Vol. I, No. 1. January, 1920. [In French.]

Birds of the London Zoo. By D. Seth Smith. Mentions such rare birds as *Irena, Comatibis, eremita, Scopus*, etc., and figures the two specimens of the Kagu now living in the garden.

Hummingbirds in Captivity. By J. Delacour. (Continued in February.)

Observations on Some Waeverbird Hybrids. By A. DeCoux.—Colored plate of *Zonogastris melba*×*Estrilda phoenicotis*.

Breeding of the Demoiselle Crane. By A. Touchard.

Ornithological Reminiscences of Belgium during the Occupation. By C. Dupond. (Continued in February.)

L'Oseau. Vol. I, No. 2. February, 1920. [In French.]

The Golden-naped Woodpecker. By H. D. Astley.—*Chrysophlegma flavinucha*.

Descriptive Notes on Hummingbirds that have been imported living into Europe. By E. Simon.

Some Experiences in Crossing Peafowls. By F. E. Blaauw.

The Mikado Pheasant, *Syrmaticus mikado*. By J. Delacour.

L'Oseau. Vol. I, No. 3. March, 1920. [In French.]

The Blue-tailed Pitta. By H. D. Astley.

Acclimatization in French West Africa. By Dr. Millet-Horsan.—Possibility of introducing Paradise-birds on the Ivory Coast. (Continued in No. 4.)

Some Collections of Living Birds in England. By J. Delacour.

Calliste in Captivity. By A. DeCoux.

L'Oseau. Vol. I, Nos. 4–5, April–May, 1920. [In French.]

The Kite. By R. Reboussin.—With numerous pen sketches of attitudes.

Note on Three West African Birds. By A. DeCoux.

Hybrid of Peafowl and Common Fowl. By E. Trouessart.

A 'Feministe.' By C. Debreuil. A female Golden Pheasant exhibiting plumage of the male.

La Gerfaut. 10 Ann. Fasc. 1, 1920. [In French.]

Ivan Braconier. By L. Coopman.—With portrait.

Capture of a Red-necked Brant in Belgium. By A. Paque.—With colored plate.

The Birds of Devon (England) Compared with those of Belgium. By Th. Bisschop.

Der Ornithologische Beobachter. XVII. No. 5. February, 1920.

Influence of Meteorological Conditions on the Migration of the Woodcock. By Dr. L. Pittet. [In French.]

Summer Life of the Starling. By H. Fischer-Sigwart. [In German.]

Der Ornithologische Beobachter. XVII, No. 7. April, 1920.

On Zoological Nomenclature. By A. Hess.—The use of and between two specific names to indicate intermediates, the open end of the "V" being toward the species which it most resembles. [In German.]

Ornithological Notes on the Region of the Bosphorus. By A. Mathey Dupraz. [In French.]

The Call-Notes of Birds and their Significance. By H. Noll-Tobler. [In German.]

Der Ornithologische Beobachter. XVII, No. 8. May, 1920.

Report of the Swiss Central Station for Bird Ringing in Bern, 1917–1919. By A. Hess. [In German.]

Influence of Meteorological Conditions on the Migration of the Woodcock. By L. Pittet. [In French.]

Ornithologische Monatsberichte. Vol. 27, No. 3–4. March–April, 1919. [In German.]

Remarks on the Breeding Habits of the Swift (*Cypselus apus.*) By W. Bachmeister.

Ornithologische Monatsberichte, Vol. 27, No. 5–6. May–June, 1919. [In German.]

Why do the larger Migrating Birds fly in the Wedge Formation? By W. R. Eckardt.

New East African Forms. By H. Grote.—*Macrosphenus albigula* (62), *Alseonax murinus roehli* (p. 62), *Phyllastrephus tephrolaemus usambarae* (p. 62), and *P. fischeri cognatus* (p. 63) all from Mlolo, Usambara.

Ornithologische Monatsberichte. Vol. 27, No. 7–8, July–August, 1919. [In German.]

Geographic Errors in Connection with Scopoli in Hartert's 'Vogel der Palaearctischen Fauna'. By G. Schiebel.

On the Nomenclature of the Genus Phalaropus Brissen 1760. By A. Laubmann.—Adopts the same nomenclature as already used in the A. O. U. Check-List of 1910.

On the Position of the Feet of the Bustard in Flight. By E. Hesse.—Holds them straight back under the tail. See also November-December issue for comment.

Ornithologische Monatsberichte. Vol. 27, No. 9–10. September–October, 1919. [In German]

On Some Species of the Genus Callocalia. By O. Neumann.—*C. uropygialis heinrothi* (p. 110) Nusa, New Mechlenberg, is described as new.

Journal für Ornithologie. Vol. 67, No. 1. January, 1919. [In German.]

The Migration Routes of European Birds and the Results of the Ringing Experiments. By F. von Lucanus. See also note in No. 3.

A Contribution to the Ornithology of Munsterland. II. By H. Reichling.

Journal für Ornithologie. Vol. 67, No. 2. April, 1919. [In German.]

A Contribution to the Ornithology of South Venetia and the Coastlands. By E. Paul Tranz.

The Pleistoceme Bird Fauna of Pilifszante. A Critical Review. By Geyr von Schweppenberg.

Some Critical Remarks on the Palaearctic Corvidae. By J. Gengler.

Journal für Ornithologie. Vol. 67, No. 3. July, 1919. [In German.]

Annual Report of the Bird Observation Station at Rossiten. By J. Thenemann.

Should Connecting Forms be Named? By E. Stresemann.

On Some Birds from the Southeast Coast of German East Africa. By H. Grote. *Estrilda astrild litoris* (p. 301) Ruvu; *Lagonosticta rubricata reichenowi* (p. 301), Mikindani described as new.

An Ornithological Account of Sedan. By R. Zimmerman.

Journal für Ornithologie. Vol. 67, No. 4. October, 1919. [In German.]

Ornithological Observations in the South Ural Country. By H. Grote. (Continued in January.)

Birds of the Leipzig District. By E. Hesse.

The Fissirostres of Egypt. By A. Koenig.

On the Forms of Turdus musicus. By O. Graf Zedlitz.

Journal für Ornithologie. Vol. 68, No. 1, January, 1920. [In German.]

On the Eastern Forms of Certhia. By O. Graf Zedlitz.—*C. familiaris bachmeisteri* (p. 72), *C. brachydactyla neumanni* (p. 76), both from Slonim, Western Russia.

New Genera and Species of African Birds. By O. Neumann.—*Knestrometopon* (p. 77), type *Sigmodus scopifrons* Peters; *Suaheliornis* (p. 77), type *Phyllastrephus kretzschmari* Rchw. [here selected] *Sathrocercus* (p. 78) type *Bradypterus barakae* Sharpe, *Vibrissosylvia* (p. 78), type *Callene cyornithopsis* Sharpe. Also sixteen new races of Glareola, Pternistes, Francolinus, Gymnobucco, Malaconotus, Lamprocolius, Onychognathus, Potoptera, Ploceus, Geocichla, and Erythropygia.

Berajah. pp. 55–62 ppl. XXVIII–XXXI. 1918. [In German.]

Deals with *Falco peregrinus*. Numerous plates of feathers.

Falco. XIV. No. 2. 'Schluss-nummer' for 1918. (April, 1919.) [In German.]

Ornis Germanica. III, April, 1919. Supplement to 'Falco.' [In German.]

A list of German birds with names according to the peculiar ideas of the author, O. Kleinschmidt.

Ornithological Articles in other Journals[1]

L. McI. Terrill. Fall Migrants. (Canadian Field Naturalist, January, 1920.)—A review of the autumn migration at Quebec.

Criddle, Norman. Notes on the Nesting Habits and Food of the Prairie Horned Larks in Manitoba. (Ibid.)

Laing, Hamilton M. Lake Shore Bird Migration at Beamsville, Ontario. (Ibid. February, 1920.)—An annotated list covering the summer and autumn of 1918.

Morris, Frank. Belated Guests. (Ibid.)—Midwinter records of Brown Thrasher, Towhee and Goldfinch at Peterborough, Ontario.

Nichols, J. T. Wintering Snipe and Rainfall. (Forest and Stream, May, 1920.)—"Heavy precipitation the last half of the year is favorable to the presence of Snipe on Long Island at its close."

Anderson, R. M. The Brant of the Atlantic Coast.—A leaflet of the Canadian Geological Survey in the interests of the protection of these birds under the Migratory Bird Treaty.

Nelson, E. W. Federal and State Game Preserves. (Bulletin Amer. Game Protective Asso., April, 1920.)

Lawyer, George A. Results from the Migratory Birds Treaty Act. (Ibid.)

Allen, Arthur A. A Day with the Ducks on Lake Cayuga. (American Forestry, April, 1920.) With photographs of Canvas-backs and duck-shooting.

Burroughs, John. Bird Photographs of Unusual Distinction. With extracts from the writings of John Burroughs (Natural History, December, 1919.)—Following a review of his 'Field and Study.'

Allan Brooks Birds and a Wilderness. (Ibid.)—In France.

Nelson, E. W. Region too Alkaline for Crops. (Ibid.)—A further illustration of the folly of draining the Klamath Lake region, which is resulting in the ruination of the famous bird reservation.

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[1] Some of these journals are received in exchange others are examined in the library of the Academy of Natural Sciences of Philadelphia. The Editor is under obligations to Mr. J. A. G. Rehn for a list of ornithological articles contained in the accessions to the library from week to week.

Grinnell, George Bird. A Chapter and Natural History in Old New York. (Ibid, January–February, 1920.)—With recollections of Audubon Park.

Worcester, Dean C. A Nesting Place of Micropus subfurcatus in Mindoro. (Philippine Journal of Science, December, 1919.)

Anderson, J. A., Rintoul, L. J., and **Baxter, E. V.** Occurrences of the American Wigeon in Scotland. (Scottish Naturalist, January–February, 1920.)

Baxter, Evelyn V. and Rintoul, Leonora J. The Wigeon as a Scottish Breeding Species. (Scottish Naturalist, January–February, and March–April, 1920.)

Macready, Prof. The Birds of Prince Edward Island. (Bull, No. 1, Prince of Wales College, Charlottetown, P. E. I.)—Reprinted from the 'Teachers Magazine', April 1916. A briefly annotated list in the form of a table.

Oberholser, H. C. A Synopsis of the Races of the Guiana Flycatcher *Myiarchus ferox* (Gmelin.) (Proc. Indiana Acad. Sci., 1918, pp. 304–308.)—Eight races recognized, none new.

Eifrig, C. W. G. The Birds of the Sand Dunes of Northwestern Indiana. (Ibid. pp. 280–303.)

Shufeldt, R. W. The Mounted Collection of Australian Birds in the United States National Museum. (Museum Work, 1920, pp. 212–218.)—From the author's account one might judge that the National Museum Collection of Australian birds was the most important in America while as every ornithologist knows the original Gould Collection containing the great majority of the types of this pioneer is at the Academy of Natural Sciences in Philadelphia where an almost complete exhibition series mounted by the famous Verreaux brothers has been displayed for many years.

Frowhawk, F. W. Birds Beneficial to Agriculture. (Economic Series, No. 9. Guidebooks of the British Museum (Natural History) 47 pp. 22 plates. An excellent review of economic ornithology in Great Britian.

Duerden, J. E. Breeding Experiments with North African and South African Ostriches, VI. Degeneration. (Bull. no. 7. 1919. Dept. of Agric., Union of South Africa.)—A continuation of the author's valuable reports on Ostrich farming. (Cf. also Nature, CV, pp. 106–108, 1920.)

Butterfield, E. P. The Common Wren. (Irish Naturalist, March, 1920.)—Roosting and in one instance breeding in the "male nests."

Gladstone, H. S. A Naturalist's Calendar, kept by Sir. William Jardine. (Trans. & Proc. Dumfrieshire and Galloway Nat. Hist. & Antiq. Soc., VI, pp. 88–124. 1919.)—Covering January 1 to May 31, 1829.

Philpott, Alfred. On the Occurrences of the Australian Coot in New Zealand. (New Zealand Jour. of Science and Tech., III, pp. 55–56. 1920.)

Donald, C. H. The Birds of Prey of the Punjab. III. (Journal of the Bombay Nat. Hist. Soc. XXVI, pp. 826–835. 1919.)

Whistler, H. Some Birds Observed at Tagoo, near Simla, [India]. (Ibid pp. 770–775)—Fifty-eight species listed.

Stuart-Baker, E. C. The Game Birds of India, Burma and Ceylon. Part XXVII. (*Ibid.* pp. 705–715.)—Deals with *Tragopan satyra.*

Chubb, E. C. A Skeleton of the Dodo (*Didus ineptus.*) (Annals of the Durban Museum II, pp. 97–99 with plate.)—This specimen obtained by the Durban Museum from the heirs of E. Therioux of Mauritius, is more complete than any of the other known specimens, possesing the tail bones intact. The other Dodo remains according to the author are: four mounted skeletons in the museums of Cambridge, England, British Museum, Paris and Mauritius; a foot and head at Oxford, England, being remains of a mounted specimen destroyed by moths in 1755; a foot in the British Museum and a head at Copenhagen.

Longinas Navas, R. P. Birds of Aragon. (Revista de la Academia de Ciencias exactas, fisicequinicas y naturales de Zaragoza, III, pp. 8–69.)—The author's unique policy of changing the generic name to avoid tautonymy instead of the specific as has usually been done by those who refuse to use tautonymic names, results in some new generic names which of course become synonyms viz: *Melanopica* (p. 15) for *Corvus pica*; *Pycnorhinus* (p. 20) for *Loxia coccothraustes* and *Ocelletus* (p. 56) for *Motacilla regulus.* [In Spanish.]

Bannerman, David A. On Some Rare Birds from the Belgian Congo collected by Dr. Cuthbert Christy. (Revue Zool. Africaine, VII fasc. 3, pp. 284–295. 1920)—Notes on 17 species rare or new to the Congo region. [In English.]

Schouteden, H. Contribution to the Ornithological Fauna of the Lake Region of Central Africa (Ibid. V, pp. 209–297. 1918.)—An annotated list of 554 species. [In French.]

Lonnberg, Einar. Notes on some interesting Birds from British East Africa. (*Ibid* V, pp. 97–102. 1917.)—The following are described as new: *Astur tachiro tenebrosus* (p. 99), Londiana, and *Zosterops Bayeri* (p. 100), Elgen. [In French.]

Schouteden, H. Note on a Woodpecker from the Congo. (Ibid. IV, p. 143. 1916.)—*Dendromus kasaicus* Dubois proves to be *D. caroli* (Malh.) with some plumage from another bird added. [In French.]

Dehaut, E. G. A Contribution to a study of the Vertebrate Life of the Islands of the Eastern Mediterranean, with special reference to Sardinia and Corsica. Paris, 1920. [In French.]

Godard, Andre. The Utility of Birds. (La Nature, No. 2386. 1919.) See also No. 2390 [In French.]

Rollinat, Raymond. The Breeding of the Horned Owl in Captivity. (Bull. Soc. Nat. Acclim. France, 1919. December, pp. 373–376) [In French.]

Schalow, Hermann. A Contribution to our Knowledge of the Bird Life of Various Battlefields. (Die Naturwissenschaften. CXX pp. 176–178.) [In German,]

Helfer, H. Bird Observations in Spring. (Zool. Anziger. XLIX, 1917, pp. 214–220.)—Gives dates for first song. [In German.]

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CORRESPONDENCE

A. O. U. Luncheons

EDITOR OF 'THE AUK':

One of the most pleasant features of our annual meetings is the lunch provided each day by the local committee as it gives those in attendance an opportunity for social intercourse which would otherwise be impossible. Many of our members have long felt the obligation we are under to the Delaware Valley Ornithological Club, the Nuttall Club, the Linnæan Society of New York, the Biological Society of Washington, and the members of various local committees who in the past have so cheerfully and silently contributed to the entertainment fund, but very few of us have fully understood, even with our own experience with the "high cost of living," how great a burden the more recent meetings have proved to the financial resources of our local committees.

The meeting of the American Society of Mammalogists in New York, last May, has shown that the lunch hour can be equally successful if the members pay for their own lunch and the feeling expressed on this point was one of general approval. Some of us, who from our geographical position cannot hope to return the hospitality of our fellow members, feel that on that account we are less embarrassed in suggesting that while the daily lunches be continued as heretofore that each one pay his own share as is already the custom in connection with our annual dinner.

Toronto, Ontario. W. E. SAUNDERS,
June 7, 1920. J. H. FLEMING.

[While we feel sure that the several local committees have been only too glad to entertain the visiting ornithologists at past A. O. U. meetings and are quite willing to continue to act as hosts at the luncheons, we realize that there is a more serious factor involved in this matter which directly affects the welfare of the Union. We must all realize that the influence of the Society would be greater if meetings could be held in a greater number of localities than is now customary, but the local expenses referred to by our correspondents, make it impossible to hold meetings away from the several centers of ornithological activity where there is a large resident membership. Increased attendance at the meetings which is especially desirable, tends further to aggrivate this condition. We therefore feel that Messrs. Saunders and Fleming in their courteous and thoughtful note have opened up the way to an important innovation which may prove a lasting benefit to the A. O. U.

EDITOR.]

Popular Nomenclature

EDITOR OF 'THE AUK':

The question of nomenclature has been so persistent recently here, there and everywhere, that I trust you will pardon me for touching on this controversial subject once again. It is not to the scientific names that I wish to make reference, but to the popular ones. Mr. Ernest Thompson Seton has recently expressed his views on this subject both in the columns of 'The Auk' (April, 1919, Vol. XXXVI, pp. 229–235) and in those of the 'Journal of Mammalogy' (Feb., 1920, Vol. I, pp. 104 & 105). Since Mr. Seton draws a clear line of demarkation between the scientific and the field student and presumably puts forth the views of the latter in his articles, I trust you will also find the space for the views of a scientific student. Not that I have ever before considered myself as such, for the majority of my published papers have been on field work pure and simple, but my views differ so fundamentally from those of Mr. Seton, that I now think I must belong to the class he designates as scientific.

Mr. Seton advocates a system by which popular names should be fixed entirely by popular taste and sentiment. It is an excellent principle but cannot be achieved, so it seems to me, if Mr. Seton's attitude be generally adopted. If a line must be drawn between the scientific and the field student, and in these days such a line seems more artificial than real, the problems of popular nomenclature can never be solved by an antagonistic attitude, but by one of frank co-operation. If the rules of priority, which have been carefully formulated by international experts are to be ignored by those, be they field men or otherwise, who personally disagree with them, a rational nomenclature, scientific or popular, can never be arrived at.

The reason I am re-opening the popular side of the question is this. In the last issue of 'Country Life' (March, 1920) there are two illustrated articles on the Sparrow Hawk. The one is entitled "Falconry" (pp. 68 & 69), the other merely the "Sparrow Hawk" (p. 156 et seq.). Throughout the articles no other name than Sparrow Hawk is given to the respective subjects, but on glancing at the photographs accompanying them one notices at once that each is dealing with a completely different bird. The first relates to the British Sparrow Hawk, ACCIPITER NISUS, the second to the American Sparrow Hawk, FALCO SPARVERIUS. The photographs are good and must be puzzling in the extreme to those geniuses of language who are ignorant of the existence of countries other than North America, whom Mr. Seton extols throughout his paper.

How the little falcon known in this country as the Sparrow Hawk ever came by this absurd misnomer is too late in the day to argue about. The fact remains and must be faced. If Mr. Seton's system is allowed to take its course such muddles as this must continue indefinitely. As he rightly contends the name is one now pleasing to and understood by the popular

mind and will have to remain in use. No efforts of the scientist can eradicate it. Yet there is a solution to the problem and a very simple one—by the use of the prefix "American." There is no doubt that ACCIPITER NISUS was known by the name of Sparrow Hawk before FALCO SPARVERIUS received it and therefore by the rules of priority and common sense the latter should be modified to "American Sparrow Hawk." It is the only way of saving such an absurd situation as has arisen in the last number of 'Country Life.' It is all very well to argue as Mr. Seton does "that the genius of language does not know of the existence of South America or concern itself with priority or with anything but getting the idea into the mind and memory." Such an argument is too restricted to be of value. The genius of language may devise the name of Sparrow Hawk, but surely it will not be too difficult for him to learn and remember that another genius of language in another country (even if he has to be informed of its existence) discovered this name a century or two earlier and applied to to a different bird and therefore the word American will have to be prefixed to his Sparrow Hawk to distinguish it from the original. Earlier in his letter Mr. Seton mentions the Robin and states without comment that "actually even the scientific lists give the bird as *American* Robin." (The italics are mine). Here he takes an example in which the rules of priority have been tacitly acknowledged by the use of the prefix "American" and acclaims the result, but he then proceeds to deprecate this only possible way of arriving at a satisfactory popular nomenclature. The principles of priority may primarily concern the scientific student but they cannot be ignored by the field worker. They are fundamental. There is no doubt that the names now firmly fixed in the popular mind will have to stand, but there is no reason why in the case of the many birds that have names in use in other countries, if these latter have priority, the American species should not be differentiated by the use of the prefix "American." It has been done in the case of the Robin. It should likewise be done in all other cases.

I feel that I am unduly trespassing on your space, but there is one other point to which I should like to call attention. Mr. Seton gives a number of very interesting examples of birds that have several popular names all well established in the districts in which they are respectively used. If standard books would give a list of these recognized names instead of attempting to eradicate them in favor of a single one and give to the one in most general use the most prominent place, the book would be of universal value. In a country the size of North America it is only reasonable to expect that a bird should have more than one popular name. Even in England, small as it is, many of the people in the north do not know what is meant if a southern name be applied to some of their commonest birds. As Mr. Seton points out, Doctor Elliot Coues hit upon this plan. It has been followed by one or two other authors, e. g., Mr. Bailey in his 'Birds of Virginia' and Mr. Taverner in his 'Birds of Eastern Canada.'

If the scheme were generally adopted, the list being restricted to names that are really and truly well known, the genius of language should be taught to take his choice rather than to be encouraged to increase confusion by the invention of more names. The plan has been widely and successfully used in other countries. It should succeed equally well here.

I fear this letter sounds as if I had a quarrel with Mr. Seton. Far from it. He has, however, put his views strongly. I have followed suit.

WM. ROWAN (M. Sc., M. B. O. U.)

University of Manitoba, Winnipeg, April 4, 1920.

EDITOR OF 'THE AUK':

Various aspects of the English language nomenclature of the A. O. U. 'Check-List' have recently been given publicity by prominent ornithologists, and the desirability of some changes has been made apparent.

When the first edition of the 'Check-List' was being prepared, the terms "Junco" and "Vireo" were adopted, in preference respectively to the terms "Snowbird" and "Greenlet," as the result of an appeal to the readers of 'The Auk', made through its pages. The wisdom of the choice made at that time in accordance with the majority of the preferences expressed in answer to the appeal has been well proven in the succeeding years. Could not a similar appeal now be made in the expectation of equally happy results?

It is suggested that the five propositions stated hereunder, intended to apply only to the standard "common" names of the birds included in the 'Check-List,' be submitted to the readers of 'The Auk' for expressions of opinion, each proposition to be considered separately, and that any of them which may be favored by a majority of the replies received be applied in the revision of the "common" nomenclature of the 'Check-List.' While the writer personally favors the application of each and all of these propositions, he would make clear that he is not here directly urging their adoption, but merely their submission to the judgment of the entire personnel of the A. O. U.

Proposition 1. *Each species shall be given a name which shall be distinct and applicable to the species as a whole, and the names of the subspecies, if any, into which the species may be divided shall each consist of the name of the species with an appropriate modifying term prefixed.*

This is merely the logical application of trinomial nomenclature to "common" names. At present the English-language names of the 'Check-List' do not properly indicate the difference between species and subspecies and in this respect they are neither scientifically accurate nor practically convenient. We have "Yellow Palm Warbler" as an equivalent of *Dendroica palmarum hypochrysea* and "Palm Warbler" as an equivalent of *D. p. palmarum*, but we have no English-language equivalent of the species name, *D. palmarum*. The result is to contribute to what Dr.

Dwight has termed "the exaltation of the subspecies" and to prevent exact reference in English to a subdivided species without awkward circumlocution. Mr. P. A. Taverner, who has applied the principle of this proposition to the names used in his recent 'Birds of Eastern Canada,' suggests the extension of "Palm Warbler" to indicate the entire species and the adoption of the name "Interior Palm Warbler" for *D. p. palmarum*, which is a fair example of the type of changes which would be brought about by the acceptance of the proposition.

Proposition 2. *Clumsy descriptive names shall not be introduced and, where such are already authorized, they shall be replaced by appropriate shorter names.*

This is but an expression of a tendency which has long been apparent. "Blue Yellow-backed Warbler" has given place to "Parula Warbler," "Bay-winged Grass Bunting" has yielded to "Vesper Sparrow," and we are well satisfied with the changes; why should not "Black-throated Green Warbler" be discarded in favor of "Vee Warbler,""Canada Sparrow" be substituted for "White-throated Sparrow," and similar changes take place where needed throughout the 'Check-List?' The acceptance of Proposition 2 would render much more satisfactory the application of Proposition 1.

Proposition 3. *Adjectival parts of names which give a wholly erroneous idea of the bird named shall be replaced by others more in keeping with the known facts.*

There does not appear to be any reason for retaining "Connecticut" Warbler, "Nashville Warbler, "Tree" Sparrow, and other poorly chosen terms, except the fact that they are now in use. Appropriate names authorized in these cases by the 'Check-List' would quickly become current and supplant the misnomers.

Proposition 4. *The name of a human being shall not be used as the English-language name of a bird, and any such names at present authorized shall be replaced by other appropriate terms.*

Even the coining of scientific names from the names of men is a yielding to human weakness which can be justified, if at all, only on the ground that a name is a name only and does not necessarily mean anything. This justification is not applicable to English-language names, each of which should mean much about the species to which it appertains. In the case of many existing bird names derived from human names there is no pretense of a real connection between the bird and the particular human being for whom it is named, but in any case the connection between a short-lived human *individual* and a *species* whose life is of indefinitely great duration must be relatively so small as to afford no sound basis for attempting to give the species in perpetuity the name of the individual. "Wilson's Thrush" has been happily replaced by "Veery"; why cannot "Wilson's Warbler" be bettered?

Proposition 5. *Where a term is used as the name or the principal part of the name of more than one species it shall, in the case of each species concerned, be accompanied by a distinguishing modifier.*

At present *Penthestes carolinensis carolinensis* is called "Carolina Chickadee" and *P. atricapillus atricapillus* is called simply "Chickadee." This may serve passably well where but one species of Chickadee occurs, but where the ranges of two species overlap it causes confusion and many departures from the English-language nomenclature of the 'Check-List.' It is to prevent such occurrences that an application of Proposition 5 is suggested.

It may be noted that, in the example cited, to revert to "Black-capped Chickadee," as is often done, would not be in accordance with Proposition 2. Some other suitable name, such as "Cheery Chickadee," could be decided on for *P. a. atricapillus.*

In their able handling of the scientific nomenclature of the 'Check-List' the A. O. U. Committee are guided by their Code, but no such Code exists for the English-language nomenclature, which should be arranged as far as possible in accordance with the wishes of the majority of the bird students in Canada and the United States. These are the people who use this nomenclature; their judgment concerning it can be trusted; and without their approbation it cannot remain truly standard. By submitting the above propositions, or others of similar import, to the readers of 'The Auk' for their decisions, the Committee will obtain for its guidance in preparing a new edition of the 'Check-List' the concensus of opinion of the great body of well-informed American ornithologists, bird students, and bird lovers.

HARRISON F. LEWIS

P. O. Box, No. 6, Quebec, P. Q., May 21, 1920.

[The foregoing communications on popular names open up a question of far greater general interest than that of techical nomenclature, to which so much space is devoted in ornithological literature, and deserve the most careful consideration. Fortunately we have not and cannot have a code covering the use of popular names. Any attempt in this direction, such as is suggested in Mr. Lewis's propositions 2–4, will merely create a a set of "book names" which no one but certain pedantic writers will use. Popular usage makes our popular names and while they may sometimes be coined arbitrarily and meet with general acceptance this is rarely the case. As regards the attempts of the A. O. U. Committee in this direction the name "Vesper Sparrow" quoted by Mr. Lewis was a success because it was already in general use in defiance of the books; but "Snowflake" and "Dovekie" proposed at the same time were failures and were not taken up in popular usage, so that the former was rejected in the last edition of the 'Check-List' in favor of the former name "Snow Bunting" and the latter should similarly have reverted to "Little Auk." Mr.

Lewis must have, we think, much more faith in the power of the 'Check-List' than have its compilers if he thinks that it could influence general usage in such matters.

What we have said is applicable to all names, not only those denoting birds or other natural objects. We cannot enforce upon the public what the public will not have, as witness the failure of the advocates of "motion picture" as against "moving-picture," and we may see the day when "movie" will be the recognized word in our dictionaries.

Propositions such as Mr. Lewis advocates while all very well in theory would produce a set of English names but not a set of popular names, and the ornithologist who would be expected to use them surely has troubles enough as it is in the matter of names without adding to his burdens.

In these remarks it will be seen that I am in the main endorsing the attitude of Mr. Rowan and it would probably be well to follow his suggestion of giving several popular names in the 'Check-List' where there are several in general use, though the Committee would probably be criticised for errors of omission and favoritism if they made such a selection.

As to the addition of the word American to distinguish certain of our birds from English species bearing the same popular name, I cannot agree with Mr. Rowan. This practise was followed in the earlier editions of the 'Check-List' but was deliberately abolished in 1910 even in the case of the Robin. The reason for this action was that the Committee recognized in these names just such book-names as I have referred to above. Nobody thinks for a moment of calling our bird anything but Robin and we shall continue to call it so, all the check-lists and ornithologies to the contrary. It would seem quite as unnecessary to insist upon printing the name of our bird "American Robin" as it would to try to compel our British friends to call their bird "English Robin" whenever they refer to it. Americans will, it is true, use this name when they refer to the English bird just as the English will call our bird "American Robin" but to each in his own country the respective birds are simply Robins, and they will continue to be called so just as various identical household implements are given entirely differen names by the English speaking people on the two sides of the Atlantic. The Sparrow Hawk case cited by Mr. Rowan is simply an illustration of editorial ignorance and distinctive terms should of course be used in print wherever ambiguity exists.

There is it seems to us more justice in the claim of some of our western ornithologists that the "Eastern" Robin should be so designated in contrast with the "Western Robin" on the grounds that one is no more "the" Robin than the other. If we are to have any book-names let them be of this kind with the understanding, however, that in popular usage the geographical prefix in each case is to be dropped.

Mr. Lewis's fifth proposition is well taken. Where we have two kinds of any group of birds inhabiting the same region the unadorned name rarely serves as a term for either one of them. "Chickadee" as he says

is not distinctive as compared with 'Carolina Chickadee" and where the two occur we have to use the qualifying term "Black-capped" for the former. This is done now in spite of the 'Check-List' and the sooner this name is incorporated in the volume the better. So too "Crossbill" which lost its qualifying name "American" at the same time that the Robin did, is unsatisfactory and ambiguous and consequently in popular usage and in not a few publications it appears, as it should, "Red Crossbill." So too "Water-Thrush" should be officially as it is popularly called "Northern Water-Thrush" and there are doubtless others. In some cases however, there seems to have been no ambiguity as "Palm" and "Yellow-Palm" Warbler but these may also be changed if it is thought better.

Mr. Lewis's proposition concerning the consistent naming of a species and its component sub-species has already been discussed in these columns. While granting the need of some collective heading such as he suggests we do not think what the use of a word in the singular for the collective concept embracing all of the subspecies of a species will be anything but ambiguous. The word "Song-Sparrow" and "*Melospiza melodia*" have been used so long, and are still used, to denote the eastern race alone that we cannot now use the same terms to denote the whole assemblage of Song Sparrows. A better plan and one which we hope to see adopted in the next edition of the 'Check-List' has been suggested: namely to use the plural name "Song-Sparrows" for the complex *Melospiza melodia*.

After all, as stated at the outset, popular nomenclature is radically different from technical nomenclature and we must follow popular usage rather than try to arbitrarily influence it, even though we be not consistent.

WITMER STONE.]

Procellaria vittata Forster is not Halobaena caerulea Gmelin.

EDITOR OF 'THE AUK':

In the 'Proc. Biol. Soc. Wash.,' Vol. 32, p. 201, Dec. 31, 1919, Mr. H. C. Oberholser has claimed that *Procellaria vittata* was given by Forster to the bird now known as *Halobaena caerulea* Gmelin, and as it was published prior to the latter it should replace it.

Apparently Mr. Oberholser's contention is based upon the information provided by myself in the 'Birds of Australia,' and as his conclusion is incorrect, I here re-state the facts as clearly as possible so that no future misapprehension may arise.

Forster accompanied Cook on his second voyage round the world as naturalist and his son George was with him as painter. The elder Forster, whose initials are J. R., considered himself entitled to publish the results of the voyage, but the Admiralty who had engaged him did not agree with that view when his engagement concluded and definitely for-

bade him to publish anything. He overcame that obstacle in a small degree by the publication of a book entitled 'Voyage round the World' which was issued under his son's name. A preface by the son tells of the "ill treatment" of the father by the powers that were.

Casually making notes of the birds met with on the voyage, G. Forster, in Vol. I, p. 91, 1777, mentioned "Blue Petrel, so called from its having a bluish gray color, and a band of blackish feathers across the whole wing." On p. 98, when Blue Petrels were again mentioned, a footnote (perhaps by J. R.) gives a Latin equivalent, *Procellaria vittata*. I concluded "the name cannot be accepted as of this introduction, as it is indeterminable."

Had Mr. Oberholser consulted Forster's work he might have found a stronger claim to the name on p. 153 when about Dusky Sound, New Zealand, in April, 1773, Forster wrote: "Here they found an immense number of petrels of the bluish species, common over the whole southern ocean,* some being on the wing, and others in the woods. . . . They have a broad bill, and a blackish stripe across their bluish wings and body, and are not so large as the common shear-water or mank's petrel of our seas." Mr. Oberholser concluded "there is, no doubt at all" what Forster called *vittata*, and this paragraph would suggest that he was right, but that the bird so called was *not* the one Mr. Oberholser decided. The broad bill mentioned is diagnostic of *Prion*, and is not seen in *Halobaena*. The two birds are similar with peculiar diagnostic and easily observed characters, the *Prion* having a broad bill and dark tips to its wedge-tail, the *Halobaena* having a narrow bill and white tips to its square tail. Consequently no general description could be valid unless the peculiar features were mentioned.

Why Mr. Oberholser ignored the detailed account given in Cook's account of the same voyage which I quoted in full, I cannot say, as there the matter was so clearly stated that *no* reader should misunderstand it. I may recapitulate shortly. Under date of October 16, 1772, Cook logged "were now accompanied . . . and small grey petrel less than a pigeon. It has a whitish belly, and grey back, with a black stroke across from the tip of one wing to the tip of the other. These birds sometimes visited us in great flights. They are southern birds; and are, I believe, never seen within the tropics, or north of the Line." On December 23, 1772, Cook reported "Mr. Forster, who went in the boat, shot some of the small grey birds before mentioned, which were of the petrel tribe, and about the size of a small pigeon. Their back, and upper side of their wings, their feet and bills, are of a blue grey color. Their bellies, and under sides of their wings, are white, a little tinged with blue. The upper side of their quill feathers is a dark blue tinged with black. A streak is formed by feathers nearly of this color, along the upper parts of the wings, and crossing the back a little above the tail. The end of the tail

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* See page 91.

feathers is also of the same color. Their bills are much broader than any I have seen of the same tribe, and their tongues are remarkably broad. These blue petrels, as I shall call them, are seen nowhere but in the southern hemisphere, from about the latitude of 28° and upwards." Under date December 27, 1772 (p. 32) is written: "Some of the petrels (shot by Mr. Forster) were of the blue sort, but differing from those before mentioned, in not having a broad bill; and the ends of their tail feathers were tipped with white instead of dark blue. But whether these were only the distinction betwixt the male and female was a matter disputed by our naturalists."

J. R. Forster apparently had no doubt on the matter as in his Manuscript he named *Procellaria vittata* under date November 30–December 23, and gave the range as 'Habitat a Tropico capricorni in Circulum Antarcticum usque, volant celerrime.' He fully described thereunder the *Prion*, describing his broad bill and the dark tips to the tail. On the date December 28, he added *Procellaria similis*, giving the character of the *Halobaena* and the range as 'Hab. in Oceano simillimum Proc. vittatae at examin Antarctico circa gradum latitudinus 58° primam observata." The former he called "The Banded Petrel" and the latter "The white-edged silvery Petrel."

This is not novel, as these descriptions were published in 1844 under the editorship of Lichtenstein and consequently "*There is no doubt*" what Forster called *Procellaria vittata*, but this assuredly was not the species now known as *Halobaena caerulea* (Gmelin) which Forster also fully described under the name *Procellaria similis*. It may interest Mr. Oberholser also to note that J. R. Forster's names were published, also as *nomina nuda*, in the 'Tagebuch Reise Südsee unter Cook,' 1781, p. 35, where *Procellaria similis* and *vittata* both occur.

Consequently if *Procellaria vittata* Forster were to be recognized as a valid name, it would apply only to the species commonly known as *Prion vittatus* (Gmelin) and no change save that of authorship would be necessary.

Gregory M. Mathews.

Foulis Court, Fair Oak, Hants, England.
February 24, 1920.

NOTES AND NEWS

FRANK SLATER DAGGETT, a Member of the American Ornithologists' Union, died at Redlands, Cal., April 5, 1920, at the age of 65. He went to Riverside to attend the sunrise Easter services at Mount Rubidoux and shortly after returning to Redlands with members of his family and friends he was taken ill and died early Easter Monday.

Mr. Daggett was born at Norwalk, Ohio, January 30, 1855. He became interested in birds at an early age and was elected an Associate of the A. O. U. in 1889 and was one of the first advanced to the class of Members when that class was established in 1901. When first identified with the Union he was living at Duluth, Minn., but in 1895 he moved to Pasadena, Cal., where he remained until 1904, when he returned East and engaged in business in Chicago until 1912. He then took up his permanent residence in Los Angeles and became Director of the Museum of History, Science and Art, a position which he retained until his death. Under his management the Museum has developed rapidly until it has become one of the leading institutions of the kind in the West. It is perhaps best known on account of its wonderful collection of Pleistocene fossils obtained from the asphalt pits of the Rancho La Brea on the outskirts of Los Angeles. Excavations in these beds began in 1906 under the direction of Dr. John C. Merriam and continued with great success for several years. In 1913 the owner of the property, Mr. G. Allan Hancock, generously granted to Los Angeles County the exclusive privilege of excavating for a period of two years with the understanding that the specimens secured would become the property of the Museum where they now form the Hancock collection. These fossils constitute perhaps the largest collection of Pleistocene material in the world and in addition to sabre tooth tigers, ground sloths, elephants, mastodons and other mammals include the remains of about 60 species of birds of which the most remarkable are an extinct Peacock (*Pavo californicus*) and several peculiar vultures and eagles belonging to the genera *Teratornis*, *Cathartornis*, *Pleistogyps*, *Neophrontops* and *Morphnus*.

Mr. Daggett's contributions to ornithology appeared chiefly in 'The Auk' and 'The Condor.' He was not a voluminous writer and most of his papers comprised notes on the occurrence of rare or interesting species or observations based on his own field experiences. He was, however, a man of broad vision and occasionally expressed his views on general questions as exemplified by his notes on accuracy in local lists, the membership of the A. O. U., and the proper limits of the Check List of Birds. He was a man of charming personality, quiet, affable and tactful but at the same time forceful and a good administrator. For several years he served as Highway Commissioner of Los Angeles County and in 1916, when the asphalt beds of Rancho La Brea comprising a tract

of 32 acres were presented to the county for a park, to be known as Hancock Park, the work of development was placed under Mr. Daggett's direction. He was an active member of the Cooper Ornithological Club for 25 years and when Vice President of the Southern Division in 1900 his portrait was published in 'The Condor' (Vol. II, p. 9). In recognition of his ornithological work his name is now borne by two California birds (*Sphyrapicus v. daggetti* Grinnell and *Morphnus daggetti* Miller), but his greatest monument will always be his work in connection with the Museum and its collection of fossils from Rancho La Brea. He is survived by his wife, Mrs. Lelia Axtell Daggett, of Los Angeles, a daughter, Mrs. Paul Stuart Rattle, of Cynwyd, Pa., and two brothers who reside in the East.—T. S. P.

Horace Winslow Wright, since 1902 an Associate of the American Ornithologist's Union, died on June 3, 1920, at his summer home in Jefferson Highlands, among the White Mountains of New Hampshire. Born at Dorchester, Mass., June 21, 1848, the son of Edmond and Sarah A. (Hunt) Wright, he graduated from Harvard College inthe Classof1869. The year following, he entered the New Church Theological School, then in Waltham, where he completed his preparation for the ministry in 1873, and was at once made minister of the New Jerusalem Church(Swedenborgian) at Abington, Mass. In 1876, his decided literary tastes induced him to relinquish his ministerial work, and in 1878, he was made President of the Abington Public Library, an office which he held until 1892. Magazine-indexing and the revising of Latin translations, mainly theological occupied much of his time during the years from 1879 to 1896, and he prepared a catalogue of the Abington Public Library.

A summer's residence at Jefferson Highlands for five months of each year since 1882, gave him opportunity for a closer enjoyment and appreciation of Nature, an opportunity of which his more ample leisure in later years allowed him to make much avail. So arose his active interest in the observation of birds, a pursuit that became, in the last quarter-century of his life, an absorbing passion, leading him to devote much of his time to systematic rambles by field, wood and shore, eager to see and record the bird-life about him, finding in this a constant source of delight and profitable adventure. To his enthusiasm he added a painstaking care in observation and quickly developed skill and accuracy in field-study. In 1902, he became a member of the Nuttall Ornithological Club of Cambridge

During these later years he spent the winter and spring months in Boston, when it was his almost daily custom to visit favorable spots of the near-by region and to keep an accurate record of the numbers and local movements of birds seen. Being much abroad and in widely varied areas, he was frequently able to note unusual birds, the records of which appear in sundry shorter communications to 'The Auk,' beginning in 1905, with a brief account of an Arctic Three-toed Woodpecker seen on successive days in Belmont.

The Boston Public Garden and Common,—a green sanctuary in the heart of the roaring city,—he discovered to be a favorable stopping-place for migrating birds; and for a period of years he kept an accurate record of the numbers and species seen there in the course of daily visits during the spring and fall. A summary of his observations here, he finally published in an attractive little volume entitled Birds of the Boston Public Garden (Boston, 1909),—a valuable contribution to the study of migration and local movements of birds. On these early-morning tours of the Garden, he was often joined by other bird-lovers—men and women, city-dwellers, whom he inspired with his own zeal to seek recreation and profit from a brief association with birds. His kindly spirit invited all interested to share with him in these walks, until of recent years it was a familiar sight to those passing betimes through the Garden, to see him leading an eager group of men and women from spot to spot, halting here and there to focus their atention upon some feathered mite, all unconscious among the trees or shrubs. Indeed, so many availed themselves of his friendly company on these occasions that he had almost become a Boston institution. Many will date their first knowledge of birds from these quiet-hour observation walks with Mr. Wright.

In 1911, he published a carefully annotated list of the 'Birds of Jefferson Highlands,' with notes covering a considerable period of years; and subsequently a valuable series of shorter contributions came from his pen, dealing chiefly with the occurrence of interesting species. Of special note, were two papers on the relative order in which the commoner species of birds begin and end their daily song-periods in the breeding-season.

Unassuming and gentle by nature, he yet possessed a quiet dignity and a clear sincerity which at once commanded the respect and confidence of all with whom he came in contact. Though he never married, he was of eminently social instincts, delighting in companionship and ever thoughtful of others. For him the fevered activity of modern life held no attraction; but in the serene and quiet atmosphere of scholarly pursuits he found life's satisfaction.

GLOVER M. ALLEN.

DR. THOMAS MCADORY OWEN, Director of the Department of History and Archives, State of Alabama, died of apoplexy at Montgomery, Alabama, March 25, 1920. He was in the 54th year of his age, having been born at Jonesboro, Alabama, December 15, 1866. Dr. Owen was a subscriber to 'The Auk' and his name had been proposed for membership in the American Ornithologists' Union. He took a deep interest in natural history and as a result of this interest established under his Department a local collection of mounted birds in the State Capitol. His reputation as a historian was firmly established and at the time of his death he was working assiduously on a Memorial History of Alabama. In connection with his work on the history of the State he had planned to issue in his

Department a series of reports on the local natural history, the first of which is to be the 'Birds of Alabama,' by Arthur H. Howell of the U. S. Biological Survey. This is now in the hands of the printer and is expected to be published soon.

A. H. H.

Dr. Charles Gordon Hewitt, Consulting Zoologist of the Department of Agriculture of Canada, who was elected an Associate of the Union in November, 1918, died of pneumonia at Ottawa on February 29, 1920. He was the son of Thomas Henry and Rachael Hewitt and was born near Macclesfield, England, February 23, 1885. His early education was received in the Macclesfield grammar school and later in the University of Manchester, where during his college course he took first class honors in zoology. In 1904 he was appointed by his Alma Mater assistant lecturer in zoology and two years later lecturer in economic zoology. In 1908 he organized a committee of the British Association for the Advancement of Science and the Board of Agriculture, known as the Economic Ornithological committee, for the investigation of the food of British birds, and began an experiment which proved successful in using nesting boxes to attract birds to an area near Manchester which was infested with the larch sawfly.

When only twenty-four years of age he received the appointment of Dominion Entomologist and arrived in Canada September 16, 1909, and in 1910 was elected vice-president of the Ontario Entomological Society. While his interests were primarily in entomology, Dr. Hewitt was a broad and unusually well-informed zoologist. He published a number of papers on entomology and economic ornithology, but his most important work was in connection with the treaty for the protection of migratory birds in the United States and Canada. It was largely through his diplomacy, energy, and enthusiasm that the negotiations in Canada were conducted so expeditiously and successfully. As Secretary of the Advisory Board on Wild Life Protection, organized in 1916, he took an active part in the broader questions of conservation and was interested in the establishment of bird and game refuges.

Dr. Hewitt was peculiarly well qualified for his special field of activity by his quiet, tactful manner, his broad vision, and his practical knowledge of economic zoology. His death at this time when his work was so successfully under way is an irreparable loss to the cause of conservation.—T. S. P.

Dr. Johan Axel Palmen, of Helsingfors, Finland, a Corresponding Fellow of the American Ornithologists' Union, died on April 7, 1919, in his 74th year. He was born November 7, 1845, and when elected to the Union at its first meeting he was one of the youngest Corresponding Members.

Dr. Palmén devoted much attention to the fauna of Finland, on which he published a number of papers, but he was distinguished chiefly as a contributor to the subject of bird migration. His early papers were devoted mainly to birds and one of the first was his work on migration which appeared in Swedish under the title 'Om Foglarnes flyttningsvägar,' Helsingfors, 1874. It attracted little attention until it was translated into German two years later under the title 'Ueber die Zugstrassen der Vögel,' when it was widely noticed. An elaborate criticism by E. F. von Homeyer induced Palmén to publish an 'Antwort' in 1882. Two other extended papers should also be mentioned, namely his 'Geographische Verbreitung der Hühner, Sumpf- und Wasservögel im faunistischen Gebiete Finnlands,' which appeared in the 'Journal für Ornithologie' in 1876 (pp. 40–65), and his Report on the Migration of Birds published in German for the Second International Ornithological Congress held at Budapest in 1891. An English translation of this 'Report,' by C. W. Shoemaker, appeared in the Annual Report of the Smithsonian Institution for 1892 (pp. 375–396), and is the only one of his migration papers which is generally accessible to American readers. Dr. Palmén was a pioneer in defining the 'fly lines' or 'migration routes' of birds and the map which he published in his 'Zugstrassen' showing the principal routes in the Palaearctic region has been the cause of some misunderstanding on the part of those who have not taken the trouble to ascertain his real views. This misunderstanding is explained in his Report of 1891, which is an admirable summary of the work on migration done in Europe down to that date.

In honor of his 60th birthday in 1905 a 'Festschrift' was published in two volumes, containing his portrait and 18 papers and monographs by his students and colleagues.—T. S. P.

Dr. E. W. Nelson, chief of the U. S. Biological Survey, announces that the Bureau has assumed the work formerly carried on under the auspices of the Linnaean Society of New York by the American Bird Banding Association. In taking over this work he says that the Bureau feels that it should express the debt that students of ornithology in this country owe to Mr. Howard H. Cleaves for the devotion and success with which he has conducted this investigation up to a point where it has outgrown the possibilities of his personal supervision.

Under plans now being formulated this work will result in valuable information concerning the migration and distribution of North American birds which will be of direct service in the administration of the Migratory Bird Treaty Act, as well as of general scientific interest.

It is desired to develop this work along two principal lines:—first, the trapping and banding of waterfowl, especially ducks and geese, on both their breeding and winter grounds; and secondly, the systematic trapping of land birds as initiated by Mr. S. Prentiss Baldwin, the early

results of which have been published by him in the 'Proceedings' of the Linnaean Society of New York, No. 31, 1919, pp. 23–55. It is planned to enlist the interest and services of volunteer workers, who will undertake to operate and maintain trapping stations throughout the year, banding new birds and recording the data from those previously banded. The results from a series of stations thus operated will undoubtedly give new insight into migration routes; speed of travel during migration; longevity of birds; affinity for the same nesting-site year after year; and, in addition, furnish a wealth of information relative to the behavior of the individual, heretofore impossible because of the difficulty of keeping one particular bird under observation.

The details of operation are now receiving close attention, and as soon as possible the issue of bands will be announced, with full information regarding the methods to be followed and the results expected. In the meantime, the Biological Survey will be glad to receive communications from those sufficiently interested and satisfactorily located to engage in this work during their leisure time, for it is obvious that a considerable part must be done by volunteer operators. It is hoped that a sufficient number will take this up to insure the complete success of the project.

EVERYONE interested in the protection of birds will rejoice in the opinion of the Supreme Court of the United States upholding the legality of the Migratory Bird Treaty Act. The action came in connection with an appeal from the District Court of the United States for the Western District of Missouri, in a case already mentioned in these columns and seems to settle once for all the right of the United States to supersede the individual States in legislation regarding migratory birds.

The last paragraph of the opinion is worth quoting:

"Here a national interest of very nearly the first magnitude is involved. It can be protected only by national action in concert with that of another power. The subject matter is only transitorily within the State and has no permanent habitat therein. But for the treaty and the statute there might soon be no birds for any powers to deal with. We see nothing in the Constitution that compels the Government to sit by while a food supply is cut off and the protectors of our forests and our crops destroyed. It is not sufficient to rely upon the States. The reliance is vain, and were it otherwise, the question is whether the United States is forbidden to act. We are of opinion that the treaty and statute must be upheld."

THE PERMANENT FUNDS OF THE A. O. U.—From time to time the Union has established several permanent funds for special purposes. In every case the principle with such contributions as may be received is invested so as to remain intact and the interest only is used for furthering the objects of the fund. The most important of these funds are: the Brewster Memorial Fund, the Research Fund, and the Publication Fund.

The Brewster Memorial Fund, the most recent, is the gift of the friends of William Brewster to perpetuate the memory of one of the founders and former presidents of the Union by establishing a fund to encourage research in American ornithology. The sum of $5200 received in 1919, has already increased to some extent and the proceeds will be awarded biennially in the form of a medal and an honorarium to the author of the most important contribution to the ornithology of the Western Hemisphere during the two years immediately preceding. This fund administered by a special committee and the first award will be made in 1921.

The Research Fund was established some years ago by a gift from Miss Juliette A. Owen of St. Joseph, Mo., one of the Life Associates of the Union, to encourage original research in ornithology. It now amounts to several hundred dollars but the interest will not be available until the total amount reaches $5000. It is highly desirable that this fund should be increased at an early date so that the proceeds may become available for promoting ornithological work. Already applications have been received for assistance in special investigations which would be greatly stimulated if small grants could be made from this or some similar fund.

The Publication Fund comprises receipts from life memberships, bequests and special contributions. In 'The Auk' for January, 1920, the Editor has called attention to the immediate need of a fund of $25,000 and in response to this appeal subscriptions of several hundred dollars in sums of $100 or less have already been received. These subscriptions may be paid in Liberty bonds, or otherwise, in one payment or in several annual or semi-annual instalments. Not only is an adequate fund necessary to place the publication of 'The Auk' on a permanent basis and to issue check-lists, indexes and special bibliographies, but means should be provided also for publishing occasional memoirs, monographs and more extensive papers than have hitherto been attempted. At this time when the usual channels of publication are becoming restricted on account of the high cost of printing it is especially desirable that the A. O. U. should be in a position to meet the demands which are made upon it. As its permanent funds increase the Union will be able to broaden the scope of its work and to make more substantial contributions both to the development and diffusion of knowledge of ornithology.—T. S. P.

The annual general meeting of the British Ornithologists' Union was held on March 10, 1920. Thirty-eight members were in attendance with the President, Dr. W. Eagle Clarke, in the chair. Forty new members were elected and Dr. P. R. Lowe was chosen to fill a vacancy in the Committee. The officers of the B. O. U. are not elected annually as in the A. O. U., so that there was no change. A new rule was adopted whereby a committee of nine be elected to report from time to time on the authenticity of the reports of any rare or hitherto unknown bird visitors to Great Britain, and another for the increase of the initiation fee and the price of 'The Ibis.' An amendment to the former proposition to authorize the com-

mittee to keep the British List up to date, as the A. O. U. Committee is supposed to do with the North American List, was voted down.

The report of the Committee was taken up almost entirely with the question of meeting the increased cost of 'The Ibis' which now amounts to £1000 a year. It is hoped that by the doubling of the initiation fee, making it four pounds, increasing the subscription price of the journal and materially augmenting the membership to avoid the necessity of increasing the annual dues which are now one pound five shillings. The question of publication is an international one and the members of the A. O. U. will find much food for thought in this report as the same problem is constantly before us in regard to 'The Auk.'

In making comparisons it must be borne in mind that while 'The Ibis' publishes more pages per year, there are more words per page in 'The Auk,' so that by careful count it will be found that the total amount of reading matter for some years back is nearly the same in each and the number of plates about equal, although 'The Ibis' has many more of its plates colored. The price of 'The Auk,' however, is less than half that of 'The Ibis.' Of especial interest to those who have the responsibilities of 'The Auk' upon them is the statement that the trustees of the British Museum contributed £250 toward the cost of publishing Museum articles in 'The Ibis' and it is hoped that this contribution will be an annual one. Not a few papers appear in 'The Auk' which exploit the collections of various of our Museums as well as State and National Departments, toward which they have contributed nothing. The possibility of assistance along this line is well worth considering.

The January number of 'The Emu' contains an interesting account of the congress of the Royal Australian Ornithologists' Union, the first since 1914, which was held in Queensland and lasted a fortnight from September 23 to October 8, 1919. The meeting convened in Brisbane, where three days were devoted to the transaction of business, presentation of papers, and visits to points of interest in the vicinity. The week-end from Friday to Monday was given up to a camp out on Stradbroke Island in Moreton Bay, where 75 or more species of birds were observed. On September 30 about 40 members of the Union left for Dalby, about 150 miles west of Brisbane, and the next day went into camp in the Bunya Mountains. The camp was located about 30 miles from Dalby at an elevation of 3000 feet at the base of Mt. Mowbullan, the highest peak in the range. The week from October 1–8 was spent in observing, collecting, and exploring the neighboring region and in the evening talks were given around the camp fire. More than 50 species of birds were observed among which Rifle Birds, Regent Birds and Satin Bower Birds were numerous near camp. A National Park of 13,540 acres has been established in the Bunya Range and the R. A. O. U. recommended that the entire range be included in the reservation. Immediately following the meeting steps were taken to have the National Park proclaimed a refuge for native

birds and a ranger appointed to guard the reservation. The congress decided to proceed at once with the preparation of a second edition of the 'Check-list of Australian Birds' and elected a committee of 12 members to undertake the work. The officers for the ensuing year include A. F. Basset Hull as president, Dr. J. A. Leach and C. A. Barnard as vice presidents, Z. Gray as hon. treasurer, and W. H. D. Le Souef as hon. general secretary. Dr. Leach was reelected editor of 'The Emu.' The next congress will be held about the first week in October in Western Australia.—T. S. P.

THE Swiss Society for the Study and Protection of Birds held its spring meeting on May 8 and 9 in Basel. The program included an afternoon in the Zoological Gardens, an address on migration at Basel and a social gathering in the evening. An excursion was arranged for the following day to take the members through the St. Jacob Reservation to Birsfelden on the banks of the Rhine and a tour of inspection of the Berlepsch thicket planted for a bird refuge by the Basel Ornithological Society.

The Swiss Society announces an excursion of a week in July or August to the National Park on the lower Engadine. This park established ten or twelve years ago is in the extreme eastern part of Switzerland, in the Canton of Grisons, and includes several mountain valleys and the intervening ridges where wild life of all kinds is carefully protected.

THE year 1920 may be considered the semi-centennial of the discovery of fossil birds in North America since it was in the spring of 1870 that the late Prof. O. C. Marsh published his first descriptions of extinct birds. It is true that some of the specimens had actually been collected prior to 1870, but descriptions of them had not been published except in the case of *Palæonornis struthionoides* Emmons, the avian relationship of which is now considered very doubtful. During the past 50 years about 125 species have been described and most of the type specimens have been figured. The types themselves are preserved in widely separated museums from New England to California and many of the specimens are small and very fragmentary. A suggestion has been made by the Union to the authorities of several museums that each institution which possesses type specimens of fossil birds should make ten sets of casts or plastotypes of such types for exchange with other museums so that each may have a complete series of type material of the fossil birds of the continent. This suggestion has received the approval of several institutions and at least one museum has already had casts made of the types in its collection. It is hoped that similar action will be taken by the others at an early date so that the project may be carried to a successful conclusion.—T. S. P.

A COLLECTION which is a combination of autographs and other samples of the handwriting of ornithologists, now representing about 450 individuals has been brought together by W. L. McAtee with very material aid

from Drs. C. W. Richmond and A. K. Fisher. The use of this collection is available to ornithologists visiting Washington and the services of Mr. McAtee to others who may have original labels or other bits of handwriting which it is desirable to identify. Contributions to the collection will be welcome and exchanges can be arranged with others having similar collections.

In a paper published in 'School Science and Mathematics' entitled 'Bird Study in the Mississippi Valley' Mr. Horace Gunthorp presents an interesting summary of the members of ornithological societies in the various states as well as information on the teaching of ornithology in the schools of the country.

We note that in the A. O. U. Massachusetts leads with 204 members while New York has 123, Pennsylvania 75, District of Columbia 63, and California 50. While in the Cooper Club, California of course leads with 278, Massachusetts, 40, New York 33, and District of Columbia 29. The Wilson Club has its largest membership in Illinois, 66, while Iowa has 51, Nebraska 48, Ohio 41 and New York, 23. The computation was made from the 1919 lists and have no doubt been changed somewhat by those of 1920.

Dr. W. H. Osgood returned the last week in May from a brief but successful trip to Venezuela. Several hundred birds and mammals were collected chiefly in the vicinity of Lake Maracaibo and in the Sierra de Merida.

Dr. Alexander Wetmore, of the Biological Survey, sailed on May 29 for Buenos Aires to conduct investigations on the migratory birds which winter in southern South America. He expects to visit Argentina, Paraguay, Uruguay, and southern Brazil.

Mr. James L. Peters sailed about two weeks earlier, also bound for Argentina, on a collecting trip for the interests of the Museum of Comparative Zoology.

In connection with the meeting of the American Ornithologists' Union in Washington, D. C., this year, the Local Committee plans to hold an exhibit showing the history and development of zoological illustration as applied to birds, including original drawings, paintings and photographs. The pictures, which may be mounted in cards, but not framed, will be exhibited under glass in the Library of Congress (fireproof structure) where in exchange for facilities the exhibit will be held together a month or more. So far the consensus of opinion is that to keep the exhibit within bounds, each artist shall be limited to 6 original drawings or paintings and each photographer to 2 prints. This announcement is intended

as an invitation to all artists and photographers to participate in the exhibit and it is hoped to have a very general response so that the exhibit will worthily represent modern bird portraiture. Pictures need not be sent until fall. Transportation and postal or express insurance charges both to and from the exhibit will be paid when desired, and the safety of the pictures guaranteed while in the hands of the Committee. Communications on the subject may be addressed to W. L. McAtee, Biological Survey, U. S. Department of Agriculture, Washington, D. C.

THE By-Laws provide that nominations to the classes of Fellows and Members shall be made in writing, signed by three Fellows or Members, and delivered to the Secretary at least three months prior to the Stated Meeting. At present there are no vacancies in the class of Fellows but there will be opportunities for the election of 5 Members at the meeting in November. Nominations should be in the hands of the Secretary not later than August 5 and should be accompanied by a full statement of the qualifications of the candidate including a brief summary of his work and a list of his publications if any. Nomination blanks will be forwarded by the Secretary upon application.

THE Committee on Arrangements for the Meeting of 1920, recently appointed, includes John H. Sage, chairman; T. S. Palmer, secretary; W. L. McAtee, vice chairman; H. C. Oberholser, Frank Bond, Ned Hollister and B. H. Swales.